# AMERICAN GAS JOURNAL

APRIL, 1937



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HERE'S THE *Signal*

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ROBERTSHAW OVEN-HEAT-CONTROL *with the* Thermal Eye

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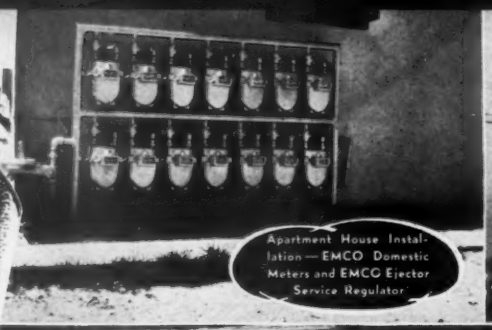
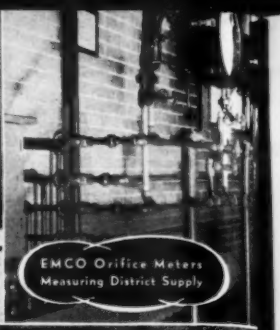


Apartment House Installation — EMCO Domestic Meters and EMCO Ejector Service Regulator



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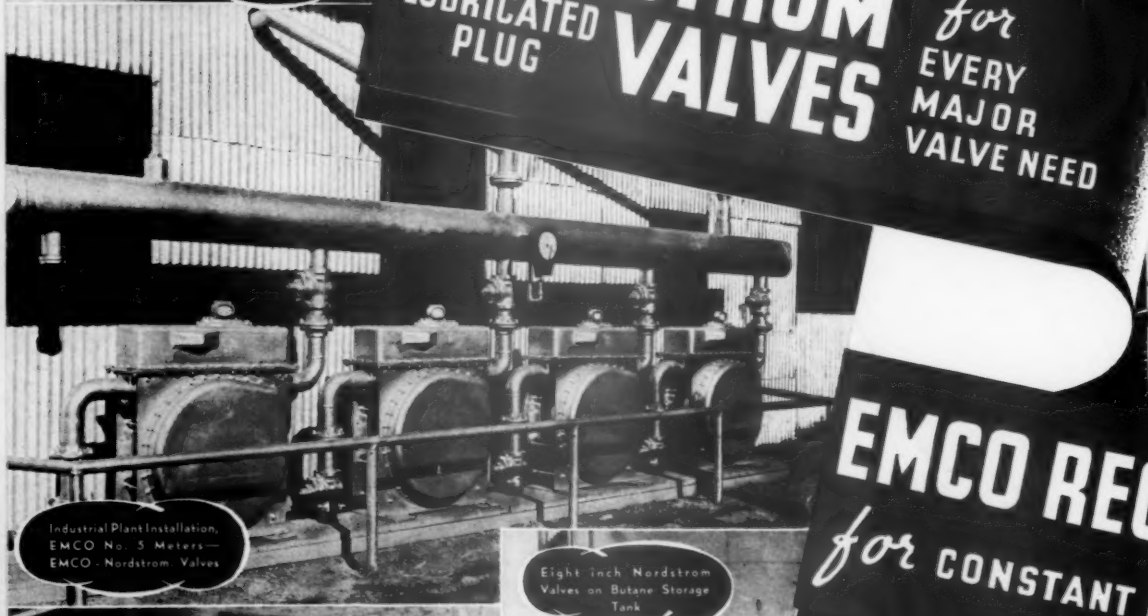
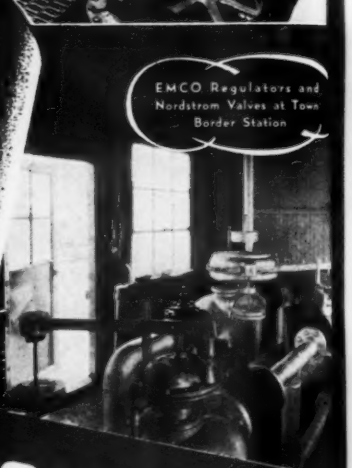
# NORDSTROM LUBRICATED PLUG VALVES *for* EVERY MAJOR VALVE NEED

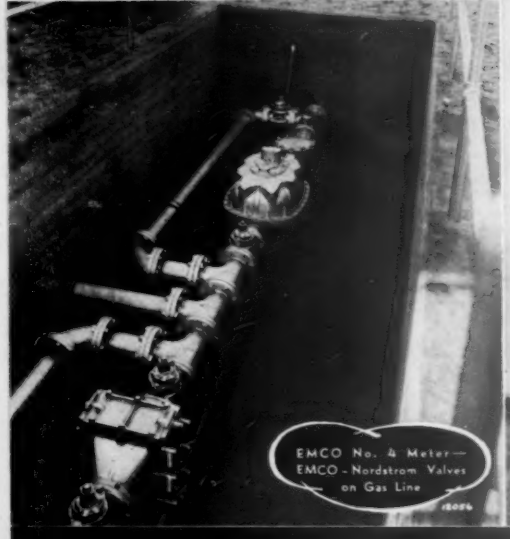


Industrial Plant Installation, EMCO No. 5 Meters — EMCO - Nordstrom Valves



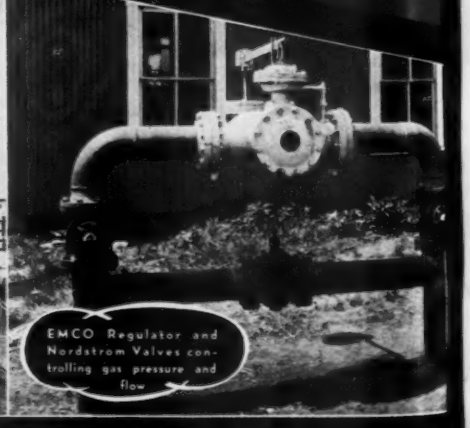
EMCO Regulators and Nordstrom Valves at Town Border Station

# EMCO REGULATORS *for* CONSTANT PRESSURE CONTRO



EMCO No. 4 Meter — EMCO - Nordstrom Valves on Gas Line

Eight inch Nordstrom Valves on Butane Storage Tank



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**Note to Reader:** This is the second in a series of advertisements dramatizing one engineer's experience with his first Dresser-coupled line. For the complete story, write for Bulletin 331.

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**MFG. COMPANY, BRADFORD, PA.**
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# THE MARCH OF T

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*"Time Marches On"* THE AIR!

*On its way* TO MILLIONS!

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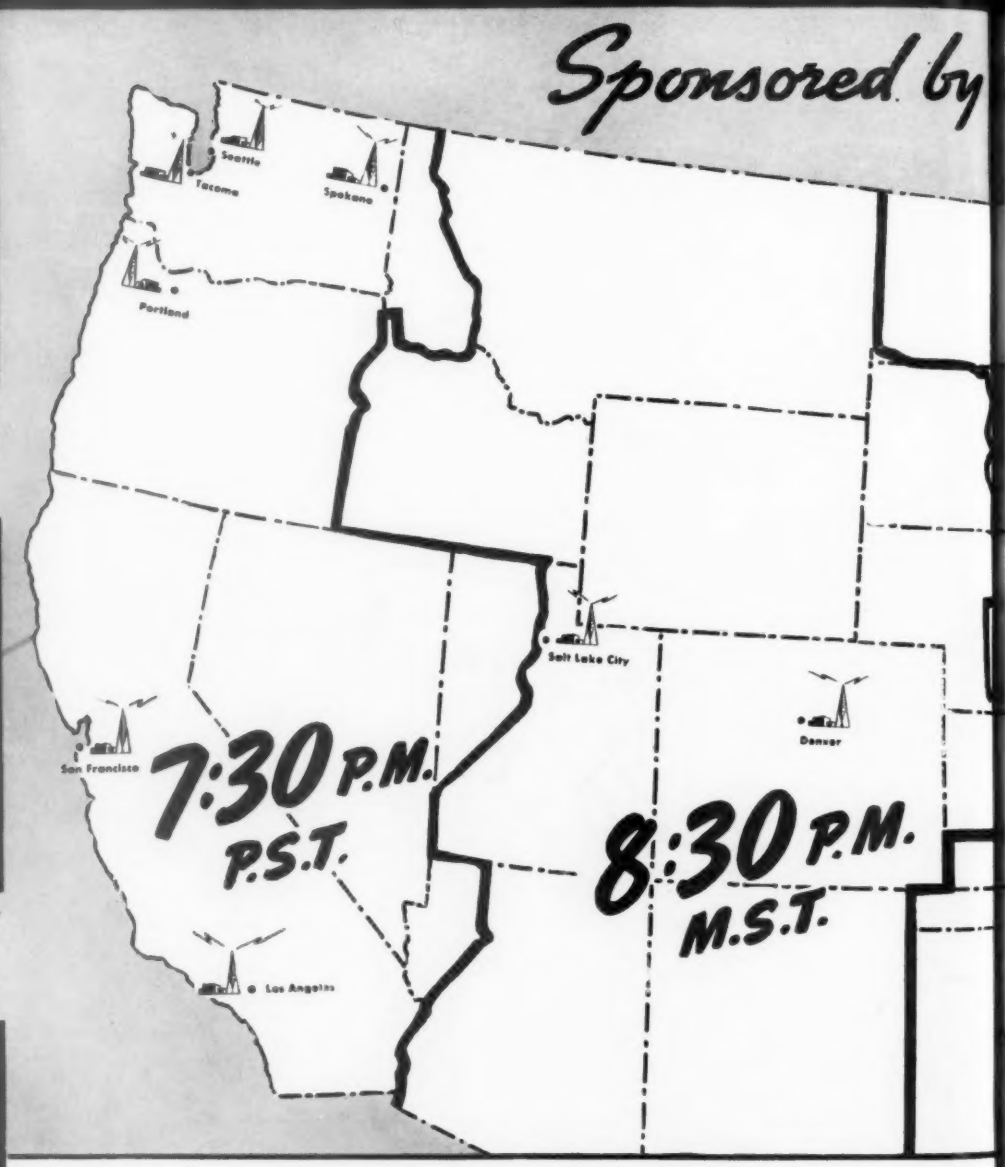


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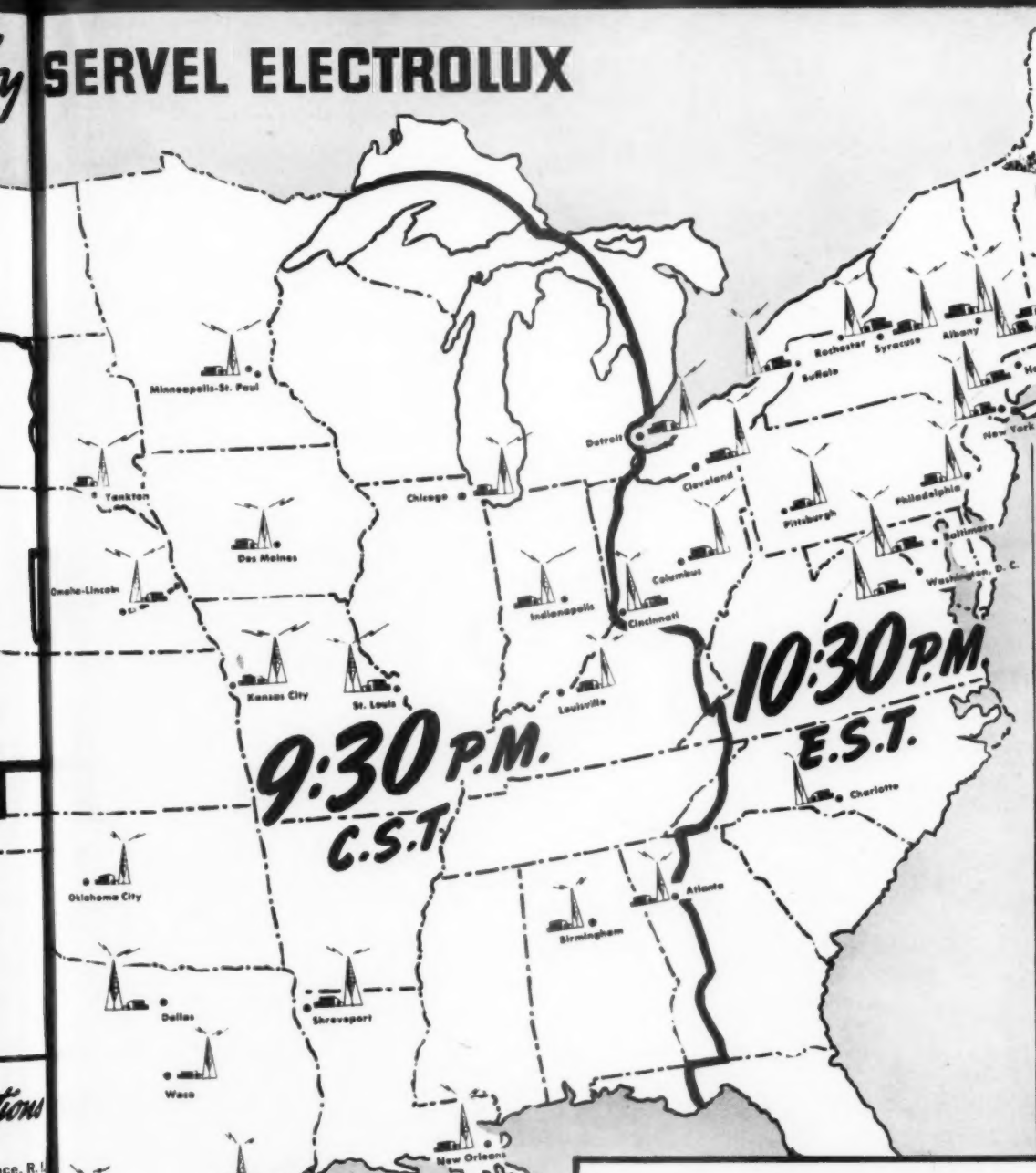
# TIME RADIO'S FAMOUS NEWS DRAMATIZATION

## WITH FULL ½ HR. PROGRAM *STARTING APRIL 15TH*

**SERVEL ELECTROLUX**



"March of Time" is the thrill of radio. Stirring. Dramatic. Alive. By its faithful reenactment of significant news, this great show brings to the nation every week a vivid portrayal of the world on parade.

* * *

Excitement, tragedy, colorful personalities—all contribute to make "The March of Time" radio's most popular dramatic program, now in its sixth year of broadcasting.

* * *

Critics everywhere have acclaimed "The March of Time" since its first appearance on the air. The show has received two major awards for outstanding service to radio, and has been cited many times in magazine and newspaper polls.

* * *

Intelligent, crisp, and accurate, the news dramatizations of "The March of Time" have a distinction all their own. They are written by able editors... played by skilled actors. They present the day's most memorable news events in a style characterized by rapid tempo and sparkling dialogue.

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PRESIDENT, SERVEL, INC.

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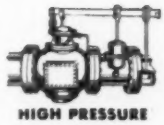
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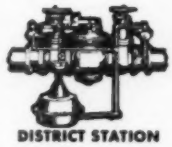
DISTRICT STATION

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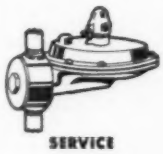
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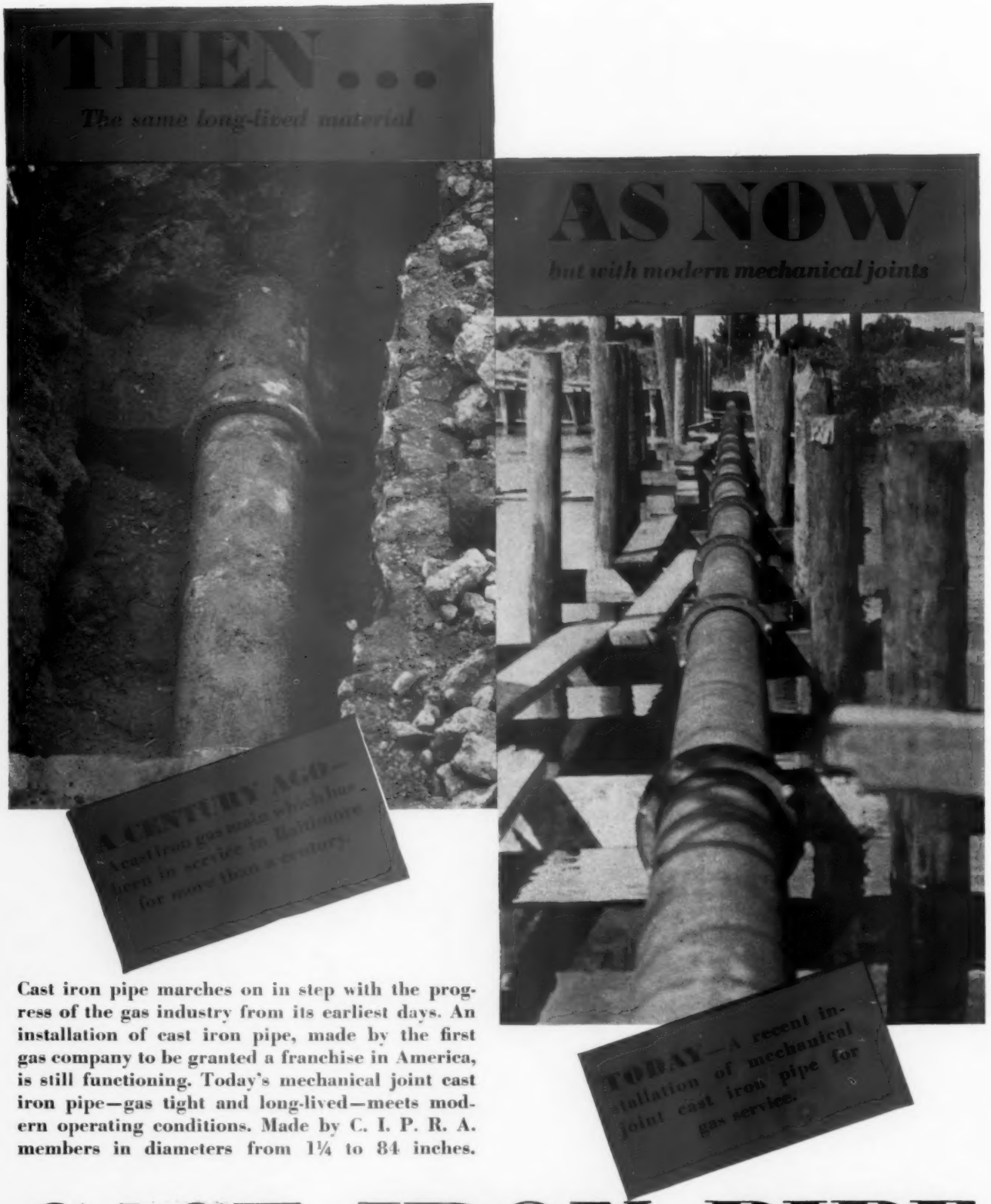
**REYNOLDS GAS REGULATOR CO.**
**ANDERSON, INDIANA, U. S. A.**

GAS CONTROL SINCE 1892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A CENTURY AGO—
Cast iron gas mains which have been in service in Baltimore for more than a century.
AS NOW
but with modern mechanical joints
TODAY—A recent installation of mechanical joint cast iron pipe for gas service.

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**The Cast Iron Pipe Research Ass'n, Thos. F. Wolfe Research Engr., 1013 Peoples Gas Bldg., Chicago**

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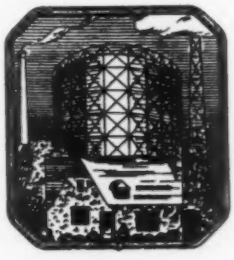

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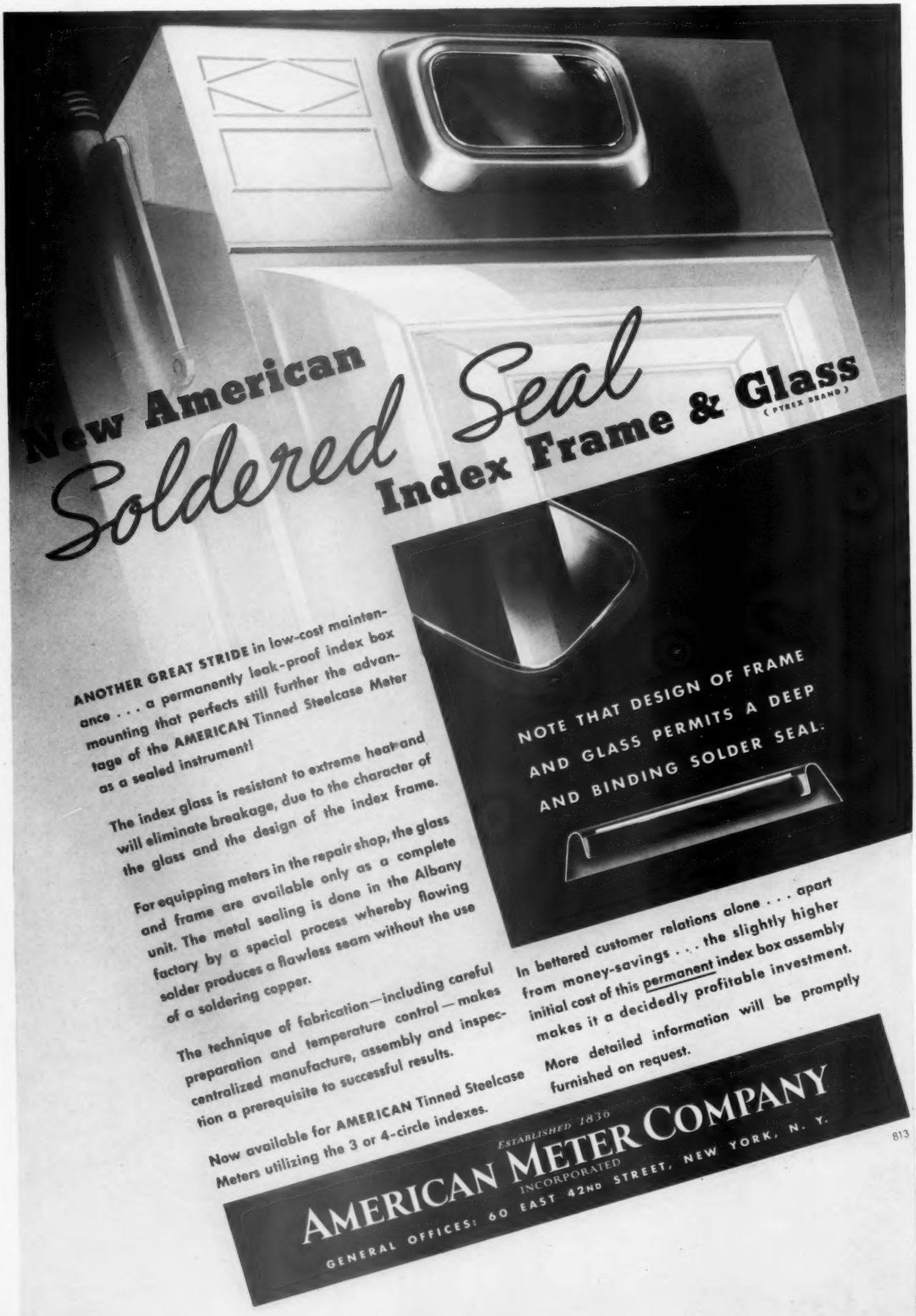

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**ANOTHER GREAT STRIDE** in low-cost maintenance . . . a permanently leak-proof index box mounting that perfects still further the advantage of the **AMERICAN** Tinned Steelcase Meter as a sealed instrument!

The index glass is resistant to extreme heat and will eliminate breakage, due to the character of the glass and the design of the index frame.

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The technique of fabrication—including careful preparation and temperature control—makes centralized manufacture, assembly and inspection a prerequisite to successful results.

Now available for **AMERICAN** Tinned Steelcase Meters utilizing the 3 or 4-circle indexes.

NOTE THAT DESIGN OF FRAME AND GLASS PERMITS A DEEP AND BINDING SOLDER SEAL.

In bettered customer relations alone . . . apart from money-savings . . . the slightly higher initial cost of this permanent index box assembly makes it a decidedly profitable investment.

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APRIL
1937

AMERICAN
GAS JOURNAL

VOLUME 146
No. 4

# The Outlook for Industrial Gas

By
**Eugene D. Milener**
Secretary, Industrial Gas
Section of
American Gas Association

E. D. MILENER

THROUGHOUT its century-long history, the Gas Industry has experienced many vicissitudes and mutations; periods of pronounced prosperity, and seasons of adversity. Again and again it has been compelled to adjust itself to change; meet the most acute competition, and, on occasion, to battle for its very existence. Gas has always won through.

Seldom has the gas industry been called upon to face such a crisis as in the recent depression, when, in addition to feeling the effects of the national business deflation, it was called upon to meet competitive conditions as intense almost as those of the transition period from gas to electricity in the sphere of illumination. But, just as the industry not only survived the loss of its illuminating load by fighting tenaciously against the inevitable until it could develop new and larger markets for its fuel, so, through courage, vision and indomitable purpose the industry has met its most recent challenge, and not only maintained but advanced its economic position.

Particularly has this been true in the industrial and commercial fields, the potentialities of which appear to have no horizon.

### An Impressive Growth

It is impossible, indeed, to fully appraise the benefits the gas industry is deriving from the steadily growing sales of gas in this field. Since the low point of the depression in 1932 the combined sales of industrial and commercial gas, natural and manufactured, have increased from 582,893,000,000 cu. ft. to 1,016,739,000,000 cu. ft. in 1936. This is a total increase of 74 per cent, the weighted increase for natural gas being 77 per cent and for manufactured gas 58 per cent.

These figures show what has been accomplished in the immediate past. But of equal importance, they point out what the trend is likely to be in the future, because there is nothing to indicate that industrial gas consumption will not keep pace with increased industrial output. Industrial gas, along with house heating, is destined to lead the industry to new heights of public usefulness in a comparatively short time, and a realization of this fact is rapidly affecting the policies of many leading executives.

### The Broad Industrial Field

Gas is now being used in industries throughout the country, notably in making and processing steel and other metals, in glass making, and in the manufacture of pottery, asbestos, textiles, dyestuffs, chemicals, plastics, and foods. Steam generation with automatic gas-fired boilers is becoming increasingly popular, and the use of gas-fired furnaces is also growing, especially for liquid baths in case hardening. The gas-fired salt bath furnace is also being used widely in the treatment of metals, especially duralumin, used chiefly in the manufacture of airplanes. Bright annealing is now being most efficiently done with gas both here and abroad, particularly in the copper and brass industries.

The use of gas is becoming more common in all branches of industry, and, in my own opinion, this is only the first evidence of what is destined to be a defined trend in industrial practice. Gas in industry no longer represents a hypothetical experiment; it has obtained a sure footing, and will soon be recognized as by far the most important and economical source of direct heat.

What research and engineering, working in close co-operation, have accomplished in the past five or six years almost belongs to the category of the marvelous. Beginning with a substantial load, the use of gas is expanding in a great number of industrial practices, such, for example, as heating in mechanized furnaces, immersion heating for liquids and soft metals, hot tubes for both high and

low temperature furnaces, pre-determined atmospheres, convection heat, accurate furnace control, better burners and combustion systems, more effective insulation. It is only a beginning, for gas is generally more suitable for these practices than other fuels, and gas apparatus has a better performance. Then, one must not overlook the increasing tendency toward better industrial gas rate structures. Incidentally, it might be remarked that gas is giving electricity more serious competition in the industrial field, notably in resistance heating, than electricity is giving gas in the domestic domain.

### Progress and Refinements

More than seven years ago, I made the prediction that prepared atmospheres would become a leading factor in industrial heating. Such a departure was not new, for gas atmospheric carburizing furnaces and muffled enameling furnaces were in general use, but at the time few expected to see much further progress in this direction. However, that prophecy has come true, and today we have practical gas furnaces for bright and clean annealing, nitriding, hardening, tempering and drawing, carburizing, enameling, forging, and various other processes, and, in addition, gas air conditioning is preparing the atmospheres of entire factories and plants to enable the more efficient and more economical production of a wide variety of products.

Convection heat is not new, but today it is being used in an infinitely larger number of heating applications than would have been dreamed of a few short years ago, for it has the advantages of simplicity, efficiency, and economy, with the added advantage of being extremely sensitive and flexible, characteristics which now enable it to compete successfully with circulating electric furnaces, enable the gas industry to overcome the psychological handicap under which it has labored so long, a feeling that gas would never be able to compete with electric appliances in this department. The amount of gas needed for a particular industrial application is fast getting down to its base level, and the essential refinements to the various heating processes are being developed as rapidly as the demand arises. To win through, we must make it possible for products fabricated wtih gas to be produced at rock-bottom unit prices.

### Value and Results of Research

Great improvement has been made in recent years in industrial gas equipment, particularly in the design of burner systems and controls, and fortunately this has been synchronized with technical development, the direct result of well-planned programs of research, stimulated and led by the activities of the Industrial Gas Research Committee of the American Gas Association, which, in the opinion of many has been the greatest single factor in this development. The Committee's work has been made possible by the continued support it has received from the Association's Executive Board.

I could enumerate a long list of activities with which this Committee has been identified, and relate a large amount of off-the-record work that it has undertaken, but space does not permit. Therefore, I shall confine myself to two phases only of the work which this group of voluntary, inspired committeemen is doing to make it possible for the manufacturers of the country to take full advantage of industrial gas. These phases relate to improvements in the older uses of industrial gas and to the introduction of gas for entirely new processes.

### New Heating Applications

In the past few years a pronounced advance has taken place in the art of applying gas to industrial heating processes. This advance has, on the whole, I believe, been equal to, or greater, than the advance in applying other forms of heating. It has extended the whole range from small to large applications, and involved the heating processes of a wide variety of manufacturing operations.

***"It is an incontrovertible hypothesis that gas will do as efficiently and as economically anything that any other direct heat agent can accomplish."***

The technical position of industrial gas has been maintained in the face of strong competitive onslaughts and has been advanced by improving the speed, cost, and general fitness of gas to perform under rapidly changing production and economic conditions.

### Air Conditioning—Summer and Winter

Among the projects that have been worked on recently are several that have borne fruit this year. Summer air conditioning with gas, for example, has been perfected commercially, and is now being actively promoted by a number of gas appliance manufacturers.

Industrial summer air conditioning employed in connection with manufacturing processes, opens up a new and an important field for both manufactured and natural gas, and represents what might be characterized as one of the most important new basic uses of the fuel developed in a number of years. Its potentialities would appear to be almost unlimited, for the science of air conditioning is still in its infancy and many factory processes in the future will be predicated on the use of conditioned air. For producing straight dehydrated air, which is useful in the summer in many manufacturing processes, the gas industry is far ahead of competitors.

It is estimated that approximately half of all gas-using air conditioners now being sold are for industrial use, chiefly in the control of the relative humidity of certain processing areas of the plant, where deliquescent and other materials subject to adverse influences are treated.

Gas is now doing a splendid job in winter air conditioning; better, in fact, than is any other fuel, and it is no exaggeration to say that summer air conditioning by gas is being rapidly accepted by both engineer and industrialist as the most effective method of controlling relative humidity. Many plants, in fact, which formerly were forced to close down in periods of extreme humidity in the summer, are no longer forced to do so with the gas air conditioner in use. Such equipment has been known to pay for itself in one season.

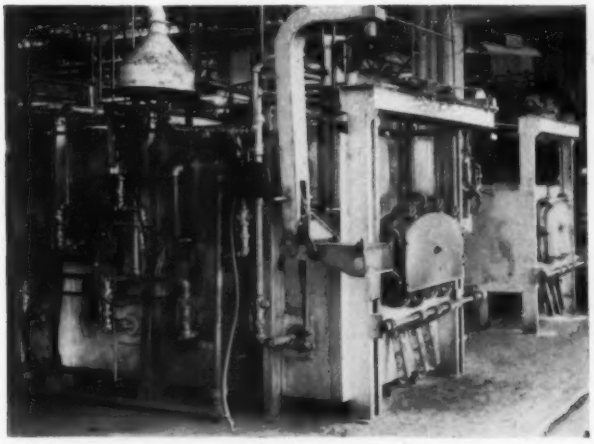
The modern gas air conditioner combines to a remarkable degree three of the essential factors of summer air conditioning, namely dehumidifying, circulating, and cleaning, and although the art of cooling by gas has not yet been developed to the degree necessary to permit the use of manufactured gas in competition with other fuels in this sphere of endeavor, in the regions served by natural gas, gas-driven compressors are being employed most effectively in cooling, and air-conditioning of both factory and home by gas is gaining rapid headway.

In the manufactured gas areas, appliance manufacturers have already developed most efficient apparatus for dehumidifying, and the present accepted practice is to employ some system of water cooling, a method which, however, has not been wholly satisfactory.

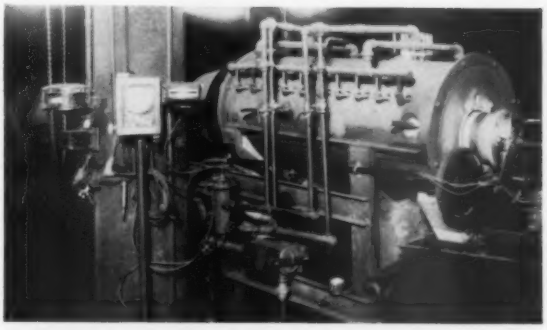
In substance, it can be said that the use of gas for air conditioning in the industrial field, where the chief requirement is dehumidifying, has a bright and immediate future, and that this roseate future will apply also to the use of gas in the domestic field when a more practical method

# Some Typical Industrial Gas Operations

Battery of Gas Fired Pit Furnaces. Tongs Lifting Crucible of Molten Bronze



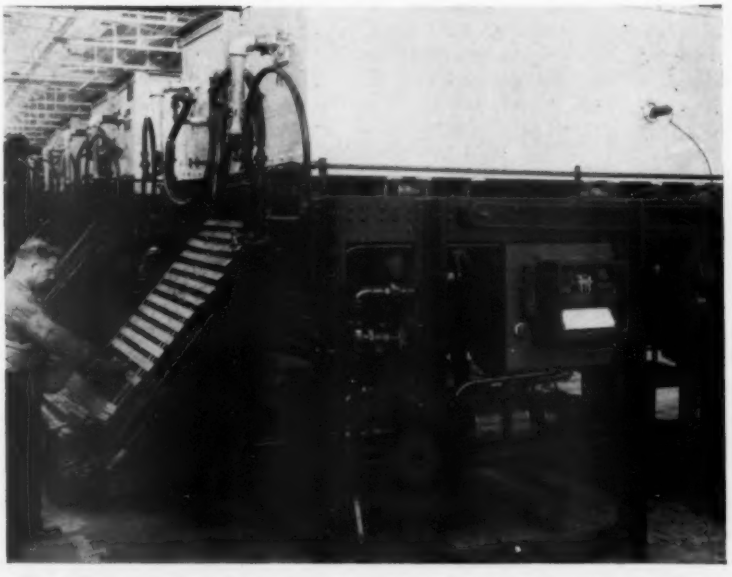
Full Muffle Carburizing Furnace using Reformed Gas as Carburizing Medium



Gas Fired Heat Treating Furnace for Ball Races. Note Pyrometer Control Equipment

Battery of 12-600 H.P. Gas Fired Boilers which supply steam to 3 5,000 K.W. Turbo-Generators.

Row of Gas Fired Cyaniding Furnaces



Battery of Gas Fired Heating Furnaces to heat Ends of Auto Spring Stock for Eye Forming

of producing cold shall have been fully developed.

### Uniform Heat by Diffusion

Another development has been in diffusion combustion, which, an offshoot of early forging researches, has been applied successfully as one method of heating what are known as gas hot tubes or radiant tubes. With this particular method of heating, gas at slight pressure induces air at one end of a nickel chrome alloy tube placed within the furnace space to be heated. The gas and air mix in the tube, and the tube gives up heat uniformly to the furnace for its entire length. The products are vented to the atmosphere by a suction of air at the discharge end. The pressure in the tube is always negative, so that even with a failure no products of combustion enter the working chamber.

These tubes are made of the same material as electric heating elements, and likewise can be placed in any part of the furnace, making unnecessary the installation of expensive refractory or alloy muffles.

Industrial men, both within and outside the gas industry, consider this to be one of the most forward recent steps in furnace engineering. The commercial success of hot tubes has been instantaneous in a number of industries, and our Research Committee is now sponsoring their use in still other industries. A notable example of the advances that have been made has been the employment of gas in steel sheets, wire, etc., where this method of heating has proved highly successful, because not only is efficient heating obtained, but prepared non-oxidizing atmospheres from special gas atmosphere generators, are easily maintainable in the working chambers for the clean annealing entirely independent of the gases in the hot tubes that are used for heating.

### Heat Treating of Metals

The successful employment of prepared atmospheres has been an outstanding achievement in industrial heating, especially as applied to the clear hardening of steel and the bright annealing of ferrous and nonferrous metals. Pioneer research work in this field, originally sponsored by the Association, has turned out to be the foundation stone on which entirely new and advanced heating processes and furnace designs have been erected. Already, very considerable progress has been made, and the acceptance of controlled and conditioned gas atmospheres is growing rapidly.

### Progress in Ceramics

Our demonstration of the practicability of firing high grade china in a direct fired gas furnace has proven practical and is creating much interest in ceramic circles. This test furnace includes the first walking beam construction in any industry to operate above 2,000 degrees. The principles developed in this glost firing research are having great influence in the design of high temperature ceramic furnaces throughout the country.

### Research

Progress also is being made in fundamental high temperature combustion research at the American Gas Association Testing Laboratories, and five projects including "Effect of Operating Temperatures on the Combustion of Industrial Gas," have been completed, and bulletins covering the studies have been widely distributed in technical circles.

There is still much to be done. Manufacturing methods and their closely related heating processes must be further improved. The industry must realize that beyond a certain point definite advancement can not be made without a proportionate expenditure of effective effort.

### Industrial Field Competitive

As we have already stated the potentialities of the industrial field are illimitable for there are literally hundreds of industrial practices to which gas can be successfully applied, for it is an incontrovertible hypothesis that gas will do as efficiently and as economically anything that any other direct heat agent can accomplish. It is probable that for the present, because of competitive fuel conditions, the operation of large units will be chiefly confined to natural gas, although with the rapid development now being made in the efficiency of industrial equipment such applications are being extended to the sphere of manufactured gas. This will have an immeasurably broadening effect on the industry.

In our attempts to develop the industrial field, it is well to remember that this business is always competitive, for there is no single process requiring the application of direct heat in which some other fuel than gas cannot be employed.

Neither can sales methods in this department of the gas business be standardized, for, although certain applications can be developed successfully by applying the same group of basic principles, almost every industrial application is a distinct operation, which accentuates the need for the salesman in this branch of the industry being an engineer of the highest calibre with a thorough technical and practical groundwork of all manufacturing practices that require the use of heat or else having the cooperative support of men with these qualities.

### Modern Equipment Essential

Gas for industrial purposes can be sold only on a basis of over-all-product cost and achievement. Thus, when it is sufficiently efficient and economical to meet either or both of these requirements, it becomes an acceptable fuel for the particular application demanded.

It is imperative that we be in a position to convince our customers that gas can satisfactorily fill all their heating requirements, and that they be absolutely assured that the equipment furnished them is thoroughly up to date. As they gain confidence, they will be won over to our fuel, and before long we shall obtain from them other operations, until ultimately gas will become their single source of heat.

Business foresight, initiative, and integrity alone can build and maintain the gas distributor's industrial load. A striking example of what can be achieved through the exercise of such foresight and intelligence is furnished by the automobile industry. Seven or eight years ago, with older methods and older furnaces—furnaces that burned more gas per pound of metal treated—a certain amount of gas was used for every car built. This year, with newer furnaces and greatly improved practices, the consumption of gas per car has actually doubled. It is the old law of diminishing returns working in reverse, and, this time, to our advantage.

# How To Determine When Signature Is Valid

By

**Leo T. Parker**

Attorney at Law, Cincinnati, Ohio

SEVERAL days ago a gas company official wrote a letter requesting information about the kind of signatures that are valid. He stated that an official, who had authority to make valid contracts for a company, forgot to sign the contract with ink although he did sign his name by use of a typewriter. The company refuses to fulfill the obligations outlined in the contract on the grounds that the contract was not signed with ink and, therefore, is not valid.

First, it is important to know that under certain circumstances any form of an authorized official's or employe's signature, such as that made with a rubber stamp, typewriter, symbols, initials, and the like may be enforceable.

For instance, in a leading case (53 S. E. 447) the higher court held that an official may bind a corporation by endorsing the latter's name with a rubber stamp, and said:

"Where the name required has been so placed by one having authority to do it and *with intent* to endorse the instrument, the authorities hold that this is a valid endorsement."

Also, see Carrol v. Mitchell Company, 128 S. W. 446, in which an employe authorized to make valid contracts affixed his employer's name with a rubber stamp to a note. Controversy developed over payment of the note and the employer contended that the obligation was void because the note was signed with a rubber stamp and the pen-written signature was omitted. However, the court held the employer liable because it was proven that when the rubber stamp signature was affixed both the employer and the employe *intended to complete a valid obligation.*

In still another case, (190 S. W. 1045), where the same point of the law was involved, a higher court said:

"The word 'writing' in law, not only means words traced with a pen or stamped, but printed or engraved or made legible by any other device."

Also, where the manager of a gas company department affixed a signature with a typewriter, *intending to make a valid contract,* the court held that actually a valid contract was made. (195 Pac. 316.)

### When Initials Result in Valid Contract

It is immaterial whether a gas company official or an authorized employe, signs a contract by full name or initials, providing the signer intended to make a valid contract when the signature was affixed.

For instance, in the case of Meaton v. Meyers, 33 Ill. 424, a gas company official signed a contract "H. C. M." Later when litigation developed over validity of the contract the court held the company liable and explained that any person may make a valid legal obligation by using *any form* of signature, mark or symbol if the signature used is substituted for the signer's name *with intentions to be bound.*

This same rule of the law is applicable with respect to notes. For example, in the leading case of Trevino v. State, 69 S. W. 72, it was shown that a person falsely obtained money by presentation of an instrument which he had signed "For account of H. and V." The court held that a signature of this nature has the same legal effect as where the name of the signer is completely written.

Therefore, in view of the above cited higher court case the law is well settled that the party who sues on a contract, or other instrument, signed with a rubber stamp, typewriter, or initials, is bound to prove that (1) the signature was affixed with intentions of making a valid contract; (2) and the person who affixed the signature was properly authorized to do so. If he is successful in introducing this testimony the court will hold the contract valid and enforceable.

### Liability of Bank

Another important point of the law is: Where a gas company employe is properly authorized by a bank to use a mechanical signing device, or to affix a written signature, the gas company is not liable although the employe *exceeds* his authority. This is particularly true if the contract on which the employe exceeded his authority was with a firm or person who had previously had business dealings with the same employe.

For example, in the very recent case of Rivers v. Liberty, 133 S. E. 210, it was disclosed that a bank furnished a corporation with a rubber stamp for use by the latter's bookkeeper to endorse checks for deposit. Without authority of any official of the corporation and without knowledge of the bank officials, the bookkeeper used the stamp to endorse checks on which he had fraudulently obtained money. In the ensuing litigation the court held the bank liable for the heavy financial loss and explained that an employer or corporation is not negligent where his bookkeeper uses a rubber stamp, supplied by the bank, to endorse checks illegally and fraudulently.

In another case, Standard v. Corn Exchange Bank, 116 N. E. 368, a stenographer was authorized by a bank to use a rubber stamp to endorse checks for deposit for her employer. She was also authorized by the bank to write after the rubber stamp endorsement her employer's name, as follows: "Percy H. Pinder, Treasurer."

Without authority of either the bank or her employer she omitted the rubber stamp endorsements, but endorsed several of her employer's checks in her own handwriting as follows: "Percy H. Pinder, Treasurer," and also endorsed her own name thereon. The checks were cashed for her by persons who later

deposited them in the bank. The bank collected the money and paid out the proceeds in the regular course of business. This court held the bank, and not the stenographer's employer, liable, saying:

"The business man who authorizes his clerk to take his checks to his bank for deposit does not vest in her so dangerous a power as to preclude him from setting up her lack of authority if she endorses his name thereon in blank and innocent persons cash the checks for her. If greater authority has been conferred, expressly or by implication, or if the principal has been negligent, or has ratified conduct of his agent, the law will not shield him."

Therefore, it seems to be well settled law that where a bank authorizes a rubber stamp endorsement, it is solely responsible for fraudulent acts of the authorized rubber stamp user.

### Personal Responsibility of Official

Obviously, either a gas company official, or employe, always is personally responsible for his fraudulent statements or conduct. Moreover, either a gas company official or employe is personally liable for any and all financial losses sustained by the gas company as a result of the official or employe acting outside the scope of his employment, or while performing any act not within the scope of his authority.

A review of recent and leading higher court cases discloses that a gas company official or employe is personally liable (1) where he makes a false statement or representation of his authority *without* intent to deceive; or (2) where he does a damaging act *believing he has authority*, but actually has none; or (3) where he acts on authority from his employer *and does an unlawful act;* or (4) where he intentionally defrauds his employer, or any other person or firm.

Moreover, an official or employe is personally liable on contracts which he signs, with proper authority, if his affixed signature *does not* clearly bind the employer.

On the other hand, a gas company may or may not, depending upon the circumstances, be liable on contracts and agreements made by an official or employe.

According to the law laid down by the higher courts a general agent is one who has *general authority* to act for the gas company in the conduction of the business, or any department. A special agent is one who is authorized to act for his employer in a limited capacity, as doing only a single act. A gas company is not liable on any contract made by a special agent, unless such agent is specially authorized to make the particular contract. A special agent is a common employe, as a laborer, a bookkeeper, a stenographer, a salesman, and the like, who is not specially authorized to perform a variety of acts but who is authorized to do only certain designated work.

A general agent is presumed by the law to have authority to bind his employer pertaining to any transactions relating to the business or department of the business of which he is the "head," or manager. However, a gas company may limit the authority of any official or employe by, in some manner, notifying the public of these limitations.

### Law of Forgery

Under all conditions a gas company may ratify a contract and make itself bound thereby, although the contract was signed by an unauthorized official, or with a rubber stamp or other means. In fact, a gas company may ratify even a forged instrument, provided the terms of the completed or ratified contract are agreeable to *all* parties involved.

For example, in a leading case (257 S. W. 215) the court held that a signature made by the use of a rubber stamp, typewriter, or printing, even when forged may be approved by the employer.

In order that the crime of forgery shall be proved it is only essential that three things should exist: (1) false making or alteration of a written instrument; (2) for the purpose of fraud; (3) and the instrument is capable of effecting fraud.

For example, where an employe, who obtained possession of a blank paper having his employer's name written at the bottom, filled written matter above the signature, he was held guilty of forgery, since the act was done *with the intent to defraud.* (70 Ill. 46.)

Also, an employe who is authorized to sign his employer's name always is guilty of forgery, if he signs the name to a document or other contract intended to defraud the employer. (18 S. W. 833.)

It is interesting to observe that a charge of forgery cannot be defeated on mere technicalities. For illustration, the higher courts have held employes guilty of forgery although the instrument forged was not dated (25 S. W. 500); the forger's name was omitted (54 Ind. 359); the signature was placed at an unusual location on the instrument (32 S. W. 1047); the instrument constituted an unsigned order for merchandise which was fraudulently obtained and the amount of merchandise in the contract was not specified (79 Ala. 262.)

Therefore, where a gas company official or employe signs the company's name by use of a rubber stamp, typewriter, initials, or otherwise, for the purpose of defrauding, the official or employe is liable to be prosecuted for the crime of forgery. This is true notwithstanding the fact that the gas company always is liable in damages for failure to fulfill the assumed obligations if the company has placed official or employe in a responsible position, or has in any manner led the other party to the contract to believe that the official or employe possessed authority to make binding contracts of the kind involved in the litigation.

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### International Gas Union Meeting, Paris, June 11th to 16th

This promises to be a red-letter year for the gas industry of France, for not only is Paris to play host to the International Gas Union from June 11th to 16th, but Gas is to occupy a dominant role in the Paris international fair, which will run from May 1st to November 1st, and since autumn workmen have been engaged in the construction of "Le Pavillon du Gaz," one of the finest monuments to the fuel ever raised anywhere in the world. It will stand on the left bank of the Seine, near the Pont des Invalides. The fair, to be known as "L'Exposition Arts et Technique de la Societe Moderne," will be the greatest ever held in France, and is expected to attract millions of visitors from all over the world. It will line both sides of the historic Seine for more than three and a half miles. Thousands of delegates representing all branches of the gas and allied industries signified their intention of attending the convention of the International Gas Union.

### Southwestern Gas Measurement Course Scheduled April 20-22

The 1937 Southwestern Gas Measurement Short Course will be held April 20-22 at the University of Oklahoma at Norman, E. E. Stovall, assistant superintendent of gas measurement for Lone Star Gas Company, who is chairman of the general committee of the gas measurement school, has announced. Plans for the course were outlined on Feb. 5 at Norman at a meeting of the general committee. Mr. Stovall presided.

R. O. Cox, chief clerk of Lone Star gas measurement department, has been invited to conduct a class on "Determination of High Pressure Line Losses" at the 1937 school.

# Editorial Comments

## Selling Water Heating Service

AT THE recent convention of the New Jersey Gas Association Mr. P. S. Young, Vice-President of Public Service Electric and Gas Company, made the suggestion that perhaps we should pay more attention to selling the idea of hot water service and less to the sale of gas hot water heaters. He did not say gas hot water service. He said and meant hot water service in its broadest sense.

With such a far-seeing viewpoint we are most heartily in accord. Anyone who has occasion to visit the kitchens and cellars of American homes can testify to the small percentage which have real hot water service. The kettle on the range still holds sway with its rusty teammate, the tank water heater, doing noble weekly duty on Saturday nights. While this situation continues the market for automatic gas water heating will remain limited. We must sell the idea of continuous hot water service; and if we succeed, a sufficient number will want the best to enable us to secure a handsome increase in business. Sell hot water service, keep constantly before the public that we have the best there is, and the sale of gas hot water heaters will almost take care of itself.

Once the public is sold on a service two things are necessary for any industry to secure and retain a major part of the business: (1) It must have the best there is in both service and appliances, and (2) it must convince the public by both advertising and performance that it has the best. The public has been pretty well sold on mechanical refrigeration and on automatic house heating. We have the best service and the best appliances for both of these, and the public is fast coming to realize this. Ask anyone well informed on mechanical refrigeration and he will tell you that acceptance and increasing sales of the Electrolux have the electric refrigerator people seriously worried. Ask any oil burner salesman in the territory of a wide awake gas company what he thinks of gas house heating and his remarks will probably not be printable. The public is sold on mechanical refrigeration and automatic house heating. Those who do not yet have them, want them. We have the best service and appliances; and where there is proper advertising and sales effort, our business in them is coming along nicely.

With our water heating business it is often a different story. Market surveys show the potential load is there; we make special rates to get it; we offer attractive water heater rental plans or long term payments, but still it is hard to acquire. Our real problem is more fundamental. We must first sell continuous dependable hot water service. We must make people want it the way they want automobiles and radios and mechanical refrigerators and automatic house heating. We must correct the impression gained from old time inefficient appliances that gas hot water heating is expensive. We must maintain our leadership in both service and appliances; and we must advertise and make the superiority of gas a matter of common knowledge.

If we are going to make the most of the much talked-of water heating business had we not better start right now to sell the idea of water heating service? To be sure it cannot be done over night. It may take three or five years or even longer. What of it? We believe the load is worth getting and it should be worth the effort needed to get it.

## Our Sales Department

WHAT is the primary objective of the sales department of your company? Is its success gauged by the number and value of the appliances it sells or by the load it conserves and adds? In short, are you running a gas appliance store or a gas new business department?

Everyone will recognize that gas appliances must be sold before we can sell gas; and we of the Journal probably take almost as much satisfaction in reading of a successful range, water heater or refrigerator campaign as the sales manager of the gas company—because we know it undoubtedly means more gas load and more antiquated appliances consigned to the scrap pile. However, there is a distinct difference between load building and mere appliance selling.

In a load building new business department the installation of the appliance is the beginning, not the end of the transaction. The home service representative will call to explain in detail its operation and to make sure that the customer knows how to get the most use and satisfaction from it. The salesman himself will also maintain an occasional contact with the customer to see that any minor difficulties are adequately cared for and to show a friendly interest in the operation of the appliance he has sold, all of which means much in building good will and in securing an inside track when there is opportunity to sell other appliances and add more load.

There are other instances however, when the signed order for an appliance closes the part and interest of the sales organization in the transaction. The installation is made and nothing further is probably heard about it until there is a call to the complaint department or until by chance it is found that the salesman for some competitive service has talked the customer into the belief that he can supply a more modern and satisfactory means of doing the work.

Even where new business department heads appreciate fully the importance of load building, appliance sales made by the company are too apt to be taken as the barometer of success. Give credit for the load.

# Rotary Compressors and Reciprocating Compressors

By
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THE heavy and cumbersome machinery of the past is constantly giving way to lighter, more efficient and better designed units. For many years the trend has been toward the employment of rotary motion and higher speeds wherever possible as evidenced by the steam turbine, centrifugal pumps, turbo blowers, rotary pneumatic tools, etc.; which have almost entirely replaced slower massive machinery in their respective fields. In keeping with this trend, rotary compressors are finding an ever widening field and popularity. Although the possibilities of the Multi-Cellular or Sliding Vane type rotary compressors and vacuum pumps as applied to various industrial processes have been recognized for a long time, it is only a few years ago that a type was evolved that has proved commercially practical and successful. This type of compressor had been produced commercially for many years in Europe, having been made a practical success by the invention of the so-called "Floating Rings," essential to its successful operation. This has since been perfected and applied to a multitude of industrial uses, bringing to this type of rotary compressor, the well earned recognition as a leader in the compressor industry. (See Fig. 1.)

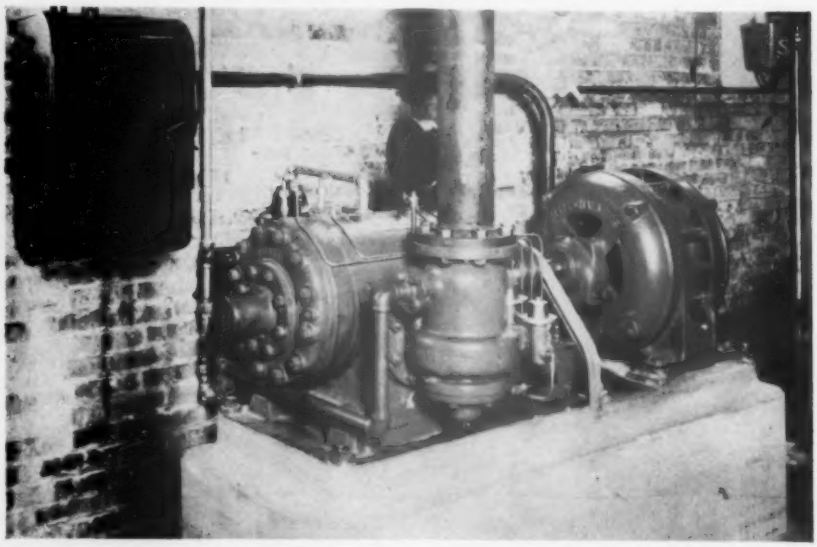


Fig. 1. Single-stage water-cooled rotary air compressor for 320 c.f.m. at 20° C., 865 r.p.m. with automatic unloader.

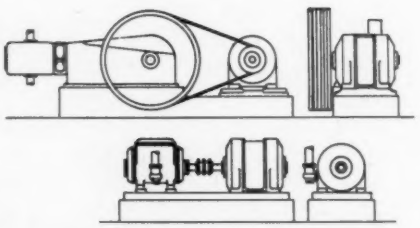


Fig. 2. Belted units are available but the greater majority are direct connected. Outline of both types shown above.

### Method of Operation of Rotary Compressors and Vacuum Pumps

Briefly, the sliding vane type rotary compressor consists of a honed cylinder with removable heads and a rotor arranged eccentrically within the cylinder. Usually the cylinder and heads are water-jacketed, although they may not be, depending on pressure and operating conditions. The rotor is mounted on a shaft and is fitted with blades or "vanes" free to move radially in slots cut longitudinally along the rotor. The crescent-shaped space between the casing and the rotor is thus divided into a number of cells corresponding to the number of blades. (See Fig. 3.) As the rotor revolves, the sliding vanes are thrown outward by centrifugal force, and each cell starting from a minimum capacity grows to a maximum and decreases to a minimum again with each revolution producing suction and compression.

Early designs encountered a discouraging obstacle in the considerable amount of friction developed by the vanes against the walls of the cylinder which lowered the mechanical efficiency, caused excessive wear and limited the operating speed. The "Floating Rings" previously referred to entirely eliminated this obstacle, and are therefore one of the cardinal features of this design. Two of these rings are used in each cylinder. The "Floating Rings" are each made in one piece and are made with their inner diameters slightly less than that of the cylinder bore. (See Fig. 4.) When the blades fly out under centrifugal force, they bear against the rings, the friction causing them to turn with the rotor and blades. A slight clearance between the outer surface of the rings and the casing is filled with an oil film introduced under pressure from a mechanical force feed lubricator which also feeds oil to the ends of rotor. This oil spreads over the inner heads and finds its way along the shaft to the bearings.

The rotor is mounted on a shaft supported in roller bearings housed in the cylinder heads at either end which also contain suitable packing glands and metallic packing effectively preventing leakage along the

*Presented at the Spring Technical Conference, Pacific Coast Gas Association, Los Angeles, March 18-19, 1937.*

shaft where it emerges from the compressor or vacuum pump. (See Fig. 5.) It will be noted that the air or gas handled is trapped between two blades, and cannot slip back through the machine, but must pass out into the discharge line, regardless of the resistance encountered. The unique feature of the labyrinth packing effect of the multiple cells effectively breaking up the pressure range between suction and discharge with only a small pressure differential between cells, eliminates intercellular leakage or slip, and combined with small inherent clearance produces high volumetric and overall efficiency. The method of operation, whereby the air or gas handled must pass to the discharge regardless of discharge resistance, identifies the rotary compressor as a "positive pressure" machine in common with reciprocating compressors and lobular blowers, as distinguished from centrifugal compressors. Unlike reciprocating compressors and pusher type blowers, however, the sliding vane rotary compressor does not become "positive pressure" until sufficient speed has been built up to

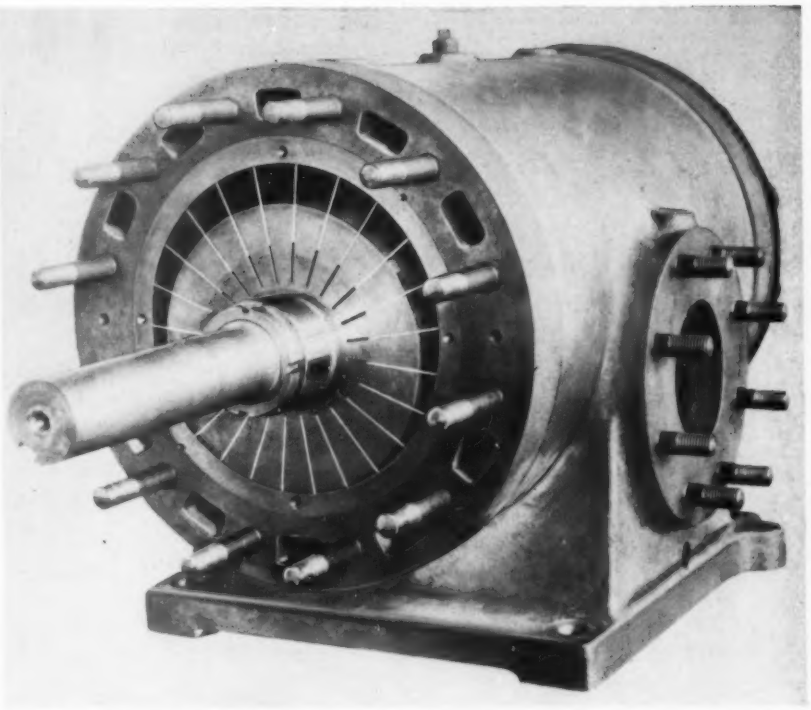


Fig. 3. Rotary air compressor with end cover removed, showing rotor and blades with blades wedged out into their running position.

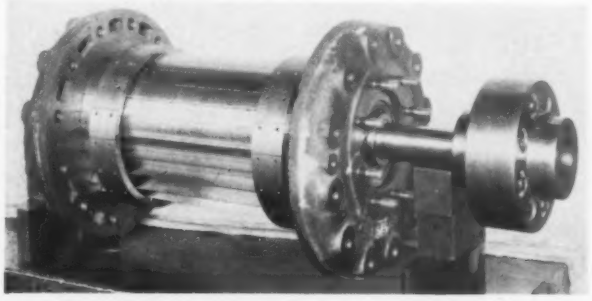


Fig. 4. Rotating parts of a rotary air compressor comprising rotor shaft and coupling, with blades and floating rings in place, and with the end covers containing the bearing in place.

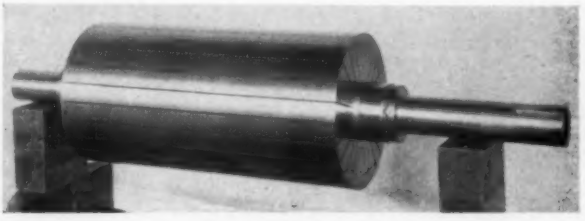


Fig. 5. Rotor for rotary air compressor mounted on shaft.

cause the blades to fly out against the casing rings by centrifugal force. Therefore, the machine always starts unloaded, and the only starting torque required is that necessary to overcome the inertia of the rotor. This eliminates all danger of accidentally starting the compressor against load or the necessity of starting unloaders and expensive motor starting equipment.

## Operating Characteristics

Due to the inherent construction of the multiple cell type rotary compressor with its multiplicity of blades in the rotor and relatively high speed, the air or gas enters the discharge pipe in a continuous

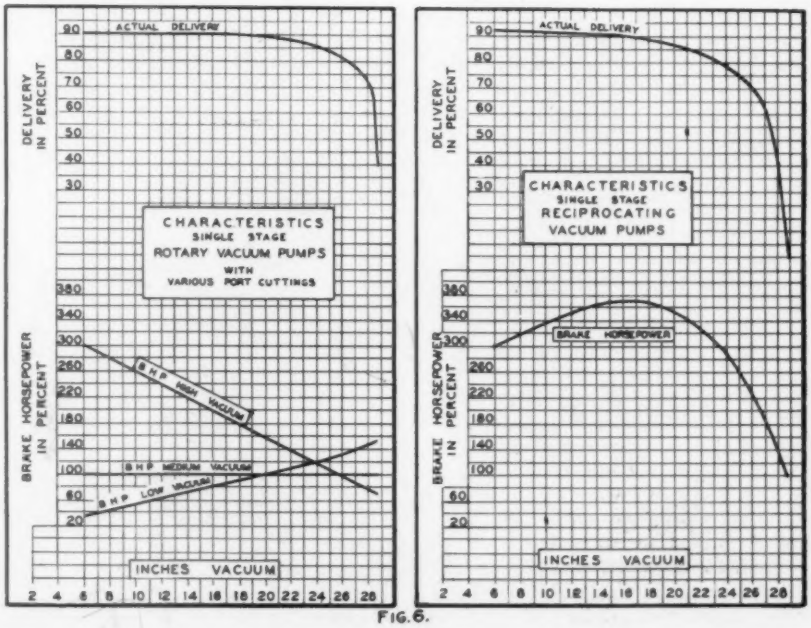



FIG. 6.

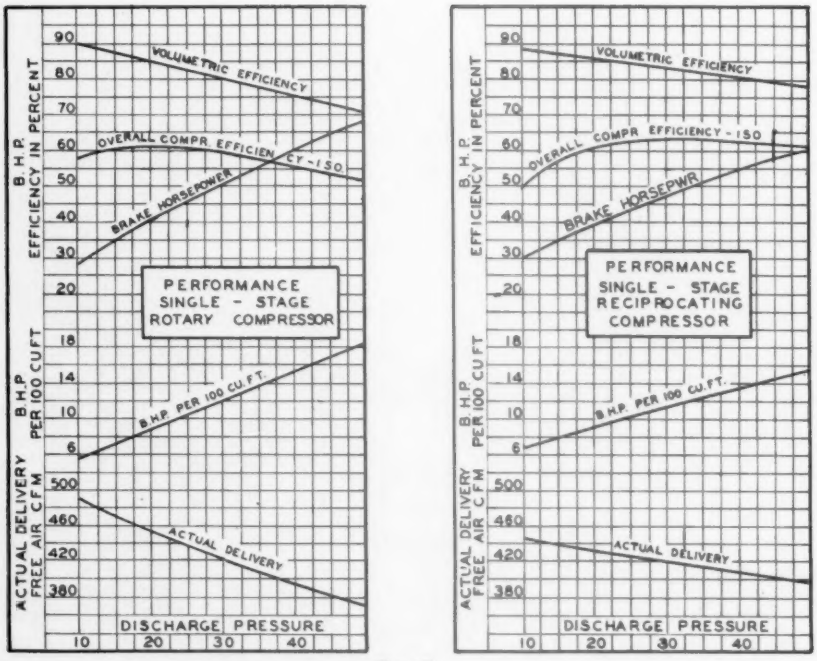



FIG. 7.

stream with entire absence of pulsations. For this reason the installation of receivers solely for the purpose of damping out objectionable pulsations is not necessary and receivers need only be installed where the load fluctuates considerably and air storage is required. Because of complete absence of reciprocating parts the operation is entirely smooth and free from vibration.

Figure 6 shows actual operating characteristics of multi-vane type rotary and conventional reciprocating vacuum pumps, both water jacketed, single stage. It will be noted that the rotary vacuum pump can be made to have different operating characteristics as desired by altering the cutting of the discharge port. This is shown for three different port cuttings designated as "high vacuum," "medium vacuum" and "low vacuum." Ordinarily the "medium vacuum" cutting is used for general purpose water jacketed single stage vacuum pumps and the "low vacuum" cutting employed on similar and air cooled units for special low vacuum units up to 18 inches. The small percentage of clearance in the cylinder of the rotary vacuum pump reflects in the high volumetric and overall efficiency maintained at the higher vacuums where the reciprocating pump efficiency falls off rapidly. With the characteristic horsepower peak of the reciprocating vacuum pump occurring in the neighborhood of 16 inches vacuum when discharging to atmosphere, it is obvious that driving horsepower must be provided to pull through this peak when operating near or above this point. In contrast, the rotary vacuum pump provided with "medium" port cutting, requires only the same low full load brake horsepower throughout the entire operating range.

Comparative performance of rotary and reciprocating single stage water jacketed 10 lbs.—50 lbs. discharge pressure compressors of the same capacity are shown in Fig. 7. The characteristics are similar. Curves showing the direct final comparison marked "BHP per 100 cu. ft." are extremely interesting in that they cross at 20 lbs. discharge pressure, indicating BHP per cu. ft. actual for both types of machines. From 25 lbs. to 50 lbs. discharge the reciprocating compressor shows a small advantage while below 20 lbs. discharge the rotary compressor is the more efficient by a correspondingly increasing amount. In either case, within its range, there is little difference in actual performance from the compression efficiency standpoint.

For pressures above 50 lbs. gauge, multi-stage compression is more efficient, and because staging can be commercially applied to the rotary type machine at costs comparable to single stage reciprocating compressors, all rotary compressors of the multi-cellular type are two-stage for 60 lbs. to 100 lbs. discharge pressure. Early designs connected two single stage rotary compressors of proper capacity in tandem with an intercooler between, usually located in the subbase or mounted to one side.

Within the past few years an outstanding design was perfected combining the two rotors on the same shaft and an intercooler enclosed in the same cylinder case. This development was designated the "Ro-Twin" compressor. (Fig. 8 and 9.) The action of the standard 100 lbs.

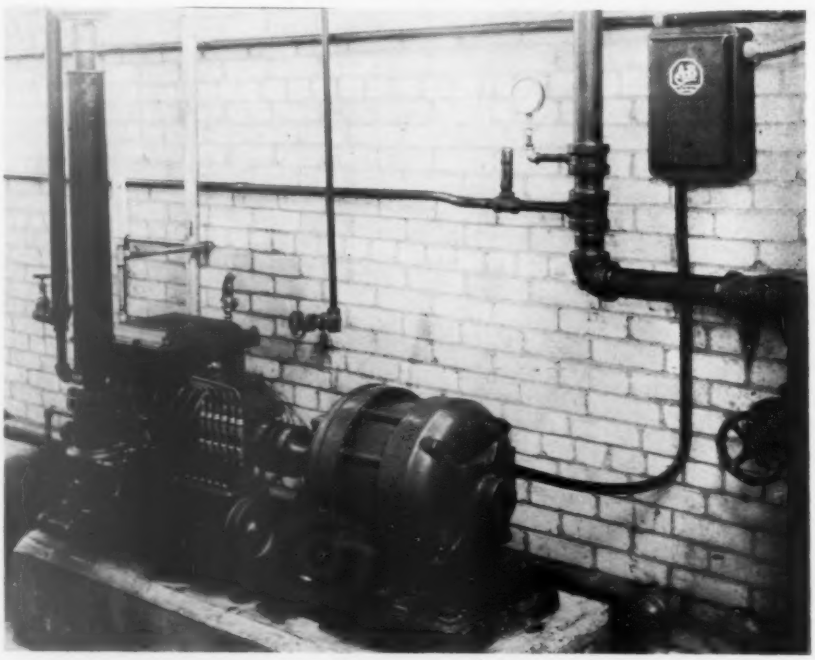
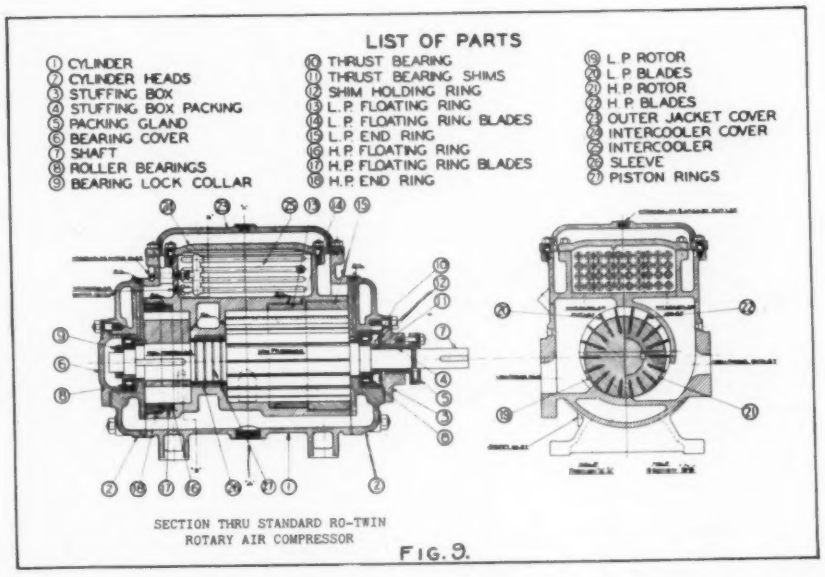


**Fig. 8. "Ro-Twin" compressor, capacity 69 c.f.m. actual delivered free air at 100° C., 1740 r.p.m., 20 hp., showing suction air filter, silencer, automatic unloader with pilot switch and lubrication system.**




SECTION THRU STANDARD RO-TWIN ROTARY AIR COMPRESSOR

FIG. 9.

machine is similar to the standard rotary compressor excepting that the air or gas is compressed to about 28 lbs. in the low pressure cylinder, then discharging thru the intercooler to the high pressure cylinder and finally discharging to the line.

A comparison of the characteristics of the Ro-Twin compressor and conventional competitive reciprocating compressor is shown in Fig. 10.

The rotary compressor lends itself admirably to direct connection of electric driving motors or vertical multi-cylinder internal combustion engines, and while belted units are available, by far the greater majority are of the direct connected type. Because of the unusually high capacity in comparison to their size, the rotary compressors are compact and require very little floor space. This is graphically illustrated in Fig. 2.

From the foregoing, the rapid increase in popularity of the rotary compressor is self-evident. The acceptance of this advanced development in the compressor field has been phenomenal, particularly in view of the short time since the original introduction in this country of the floating ring type rotary compressor. The performance of these machines has justified the faith of those responsible for its introduction and development on a commercial scale.

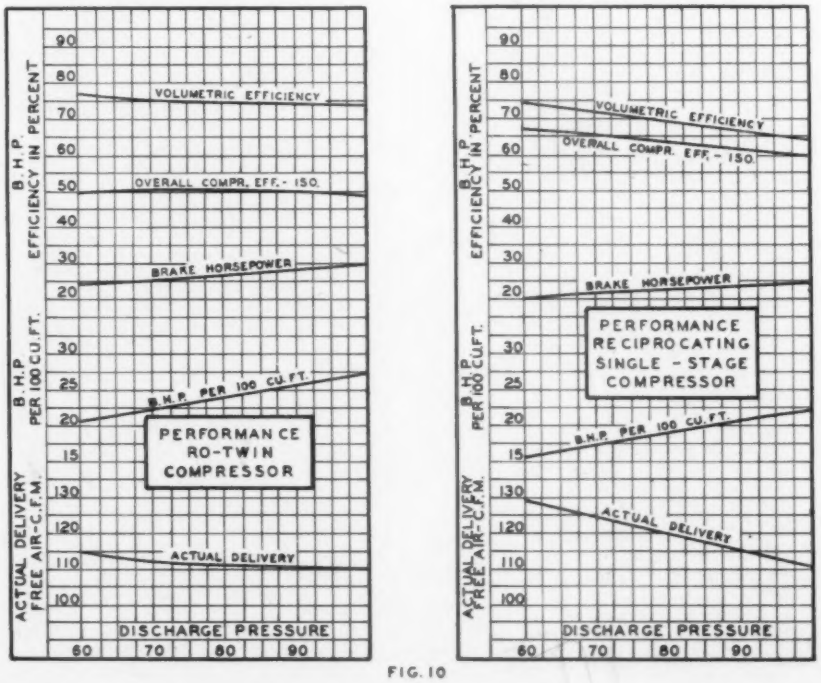



FIG. 10

## A Co-ordinated Sales Plan

By CARL B. WYCKOFF

Public Service Company of Colorado

Effective with the first of January 1937, the domestic gas sales activities of the Public Service Company of Colorado were reorganized on a more intensive basis. The Denver district was divided into four equal parts, over each of which a supervisor was appointed. Each of these four districts was then divided into eleven territories. Thus each supervisor was responsible for the results of eleven men.

Previous to this change the territories had been larger and had been handled by two men each, one representing house-heating only and the other handling miscellaneous equipment.

With the new set-up the territories are much smaller but the activities are combined under one man. The same scheme was adopted with the electric department with identical territories. Thus the city is now covered by teams of two men each, one gas and one electric.

The spirit of competition is built upon the results of individual teams and at no time is any thought of pitting one department against another encouraged. In fact, the whole scheme is based upon co-ordinating the efforts of the two. This plan has been successful in producing thorough co-operation between the members of each team and naturally has proven very productive from its inception.

This contest covered the month of February and was based on the idea of a three legged race between the four pairs of supervisors and the forty-four pairs of sales representatives. Careful analysis was made of previous productions and quotas assigned with due consideration to the upward trend of the times. The actual results for the same month of the previous year were practically doubled.

Automatic water heaters were the special objective with the gas department. The individual salesmen received daily awards in Cities Service Gas and oil coupons based upon their dollar sales, while the pair of leading supervisors received each week tickets for a first run show, together with a dinner at a leading hotel for themselves and wives.

In addition to the above, there were ten substantial cash prizes for the ten leading teams for the month. These prizes ranged from $50.00 downwards.

Progress of the various teams was recorded daily on a large bulletin board and was based upon $25.00 gross merchandise sales per block.

Interesting cartoons were prepared periodically and keen interest was maintained throughout the entire contest.

The final results were most gratifying as the combined sales for the month for the two departments were approximately $60,000.00, as compared with $34,000.00 for the same period during the previous year.

# Pipe Corrosion and Coatings

## Burial Tests

### Part 10

By Erick Larson

THE field and laboratory methods previously explained have described rapid methods of rating the destructiveness of soil corrosion. A less rapid and thus frequently impractical method is conducting a burial test which consists of burying various specimens either uncoated or coated in specially located trenches or at various points throughout a territory. This test method was effectively used by the Bureau of Standards Corrosion Division in the early experiments to determine the causes of corrosion and later to indicate the complexity of the subject, the need for continued research and the necessity for the development of theories governing losses on buried metallic structures. Recently, the considerable data collected from the Bureau of Standards study of the specimens which were buried in all parts of the United States has been used to ascertain the value of accelerated tests for determining the corrosivity of soils. The rate of corrosion at these burial test locations is known from measurements on the exposed specimens, and soil tests subsequently developed have been evaluated by rating of the soils of known corrosiveness.

#### Purpose

The purpose of a burial test would influence the selection of material, location and the procedure. A burial test is limited in scope as the effects of stray current electrolysis would not be indicated in the results. Excepting for stray current electrolysis effects the burial test would be indicative of practically all other forms of corrosion and in general may be viewed as the purpose. Pure research agencies such as the Bureau of Standards would be as much interested in the causes of corrosion as in the rates which are of primary interest to the operator of buried lines.

Operating utilities seldom commence a burial test in new territories due to the length of time required to produce results. However, in existing territories specimens are frequently buried in the same trench with the main to avoid the necessity of cutting out sections of the main to determine losses of weight from corrosion. The purpose may be to determine the rate of corrosion, the difference in rate between a bare metal main and the rate on the specimen which would not indicate the effects of stray current electrolysis, or to determine the economics of protection by determining the life of bare metal.

During the course of years many pipe materials are submitted to a utility for approval and purchase. The ability to conduct a semi-accelerated test on such samples under actual field conditions is desirable. A purpose of burial tests thus may be the comparison with other samples in the most corrosive area conveniently available.

Specimens buried vertically may be used for the purpose of ascertaining the corrosion rates of the various strata as a guide in the determination of the depth at which the corrosion will be a minimum.

#### Specimen Selection

The selection of material for a burial test may be advantageously extended to include metals or types of metals other than those commonly used in a particular system. The specimen selected depends upon the purpose and therefore in an operating utility would ordinarily be a piece of pipe from regular commercial stock.

Various factors discussed in the outline of the theories of corrosion affect specimen selection. There is a sufficient uniformity of material in commercial pipe so that selection of specimens from the pipe in stock at one or several locations purchased from one or more mills will not materially alter the results. The same reasoning applies to the texture of the pipe surface.

The fittings and joints used in a pipe line are frequently manufactured from a different metal or another form of the same metal than the pipe itself. If

Burial Test of Coated and Uncoated Specimens

the use of different metals presents the possibility of a galvanic cell forming then ascertaining the effects of galvanic action may require the construction of a specimen which will include all the metals or types of metals and arranged in the sequence ordinarily found. When the joint material is anodic to the pipe it frequently, due to greater thickness, has a longer life than the pipe although loss occurs at a greater rate.

The diameter of a pipe specimen has been found to vary the results of a burial test. The majority of speci-

mens buried in recent years have been two inches in diameter. The use of 2" diameter pipe specimens as a standard allows of more accurate comparisons with other tests. Therefore, on a local system where the number of specimens is not too great burial of both 2" and others of the size most commonly found is desirable.

The rates of corrosion determined from smaller diameter pipe would not always be applicable to large diameter lines. The particular line of demarcation between what is small and what large diameter depends on the soil stratification in each particular locality and to some extent on soil textures. The galvanic action established by a pipe spanning more than one soil type or the differential of oxygen concentration occurring with variations in soil texture or compactness may increase the rates of corrosion. Variations in corrosion rate between the top and bottom has been noticeable on pipe having a diameter of only eight inches. The burial of a few test specimens of the larger diameters is therefore desirable so as to determine the maximum pitting as well as average corrosion. Even in what appears to be identical soil conditions a difference occurs in the rate of corrosion on different diameter pipe.

### Preparation of Burial Test Specimens

Specimens for burial tests are prepared similarly to those for accelerated laboratory tests. The pipe surface may be partially or wholly coated with oil from cutting operations or other sources, lacquers or other mill coats applied to preserve appearances, foreign material such as molding sand, mill scale, etc. A dilute caustic, gasoline or other solvent is used to remove such material from the surface of the pipe aided if necessary by physical removal by some material such as steel wool. Identification is usually accomplished by stampings on the pipe ends before application of protection.

Following preparation and weighing which is checked to three parts in 100,000 or better, the ends of pipe specimens are plugged to prevent internal corrosion. A simple method is to use a tin can having a larger internal diameter than the external dimension of the pipe and filling the space with a pipe coating or material impervious to water. The can is also coated externally not only to prevent corrosion from penetrating the can and thus allow water to enter the pipe interior, but also to avoid the possibility of galvanic action which may increase the rate or loss of specimen metal. Coating of the ends prevents galvanic action between the parent metal and the metal disturbed and polished by the cutting operation.

Prevention of internal corrosion may be accomplished by plugging the pipe ends and sealing of internal coating. The original pipe specimens buried by the Bureau of Standards were placed vertically in the trench and filled with soil. Plugging produces a result more nearly equivalent to pipe line conditions. Interior corrosion in unsealed specimens is not usually at the same rate as on the exterior due to the difference in soil compactness, moisture conditions, oxygen concentrations, etc.

The length of sample is important especially in securing pit depths as experience has found the maximum pit depth measured increases with increases in length. Most of the samples buried expose 2 linear feet of metal to the soil. The relationship between maximum pit depth found on the short specimen and that on actual lines has been the subject of research and will be more fully explained in a discussion of corrosion surveying.

*(1) "Bureau of Standards Soil-Corrosion Studies," by K. H. Logan, S. P. Ewing and C. D. Yeomans in Technologic Paper No. 368, April, 1928.*

### Location

If practical at least one burial site would be located in each soil type. At least two separate sites in each soil type is desirable. Where moisture or any other conditions vary considerably in a single soil type the sites are usually selected so that the estimated maximum and minimum rates will be determined. Selection of the soil types existing in a locality would be accomplished in the same manner as making a soil survey. The existence of any foreign matter in a soil may not exclude its selection as a test site as it is important to know the corrosion rate in such areas particularly if they are extensive. However, the results of the test in such foreign matter would not be included with those found in the soil type surrounding such an area. The exact identification and description of soils at test sites may be accomplished in the laboratory or as is frequently done they may be sent to the United States Bureau of Agriculture for classification by experts.

The location of a site sometimes called a "graveyard" for continuous testing of pipe materials is desirable. Usually an area exists in each territory of more than average corrosiveness where construction or development of any nature is unlikely. Such a site may be used to provide valuable comparisons between protected and unprotected pipe materials. Such sites are also used for the comparisons of submitted pipe material previously mentioned.

### Burial

Ordinarily a utility would bury specimens in the same trench with a usable structure. Contact with or closeness to other metallic structure may result in an increased or decreased rate of corrosion. A sufficient spacing to avoid any galvanic action in addition to that occurring on the sample itself is therefore important.

The distance between other structures and the sample should be sufficient to allow the soil to normally compact. A trench side sometimes acts as another structure in preventing normal compacting of the soil. In ordinary soils a distance of at least six inches from any other structure or side wall is necessary to provide for natural compactness and eliminate cumulative galvanic action. In gravel containing large stones or rocky soils the spacing may have to be increased or all large stones eliminated from around the specimen.

The specimens are buried in a horizontal position unless changed for a special purpose. Some of the original Bureau of Standards pipe specimens were not plugged and were set vertically but the difficulty of securing normal soil conditions along the interior, cleaning the interior surface after removal and measuring pit depths inside of pipe makes placing in a horizontal position and plugging desirable. Logan (1) explains the burial of specimens with the interior filled with soil as follows. "In order that use should be made of all available surface, it was decided to put soil inside as well as outside of the pipe, and this necessitated the placing of the specimens on end to subject all sides to similar soil conditions. This deviation from the usual position in which pipes are laid eliminates to a large extent the effects of unequal packing, aeration, and drainage which often cause pipes to corrode worse on the underside, but this effect of position, while a factor in corrosion, is a function of the method of laying pipe rather than of either soil or pipe material."

Also planting vertically may cause errors in conclusions as the specimen may be in two or more soil types.

Setting the specimens in a vertical position is for such special purposes as determining the corrosion on

large diameter pipes through the use of smaller diameter specimens, the comparative rates of corrosion or more specifically pitting in the various soil horizons to allow selecting the one best adapted for mains, the comparative effects of wetting and drying where the water elevation changes and such similar reasons. Vertically set specimens may frequently be driven into the ground thus decreasing the cost of placing. In "graveyards" the vertical burying will provide practically the same degree of comparison as horizontal. Driving the specimens may produce a greater density of soil initially than exists under normal conditions but the greater period of exposure compared with accelerated tests will minimize the possible error from that factor. In "graveyard" burial soil density initially and average would be practically the same in all tests when the same sized specimens were used and therefore may be neglected as the results are not relied upon for prediction of potential life under service conditions but are more definitely for comparative purposes only.

The number of specimens buried at any one location depends upon whether the object is to study the changes in rates of corrosion or merely secure a single observation. The burial of several specimens at each site spaced so they may be separately exhumed without disturbing nearby samples is the most desirable from a theoretical viewpoint. The first and second specimens would ordinarily be exposed after comparatively short intervals of time as the corrosion rate is most rapid in the first periods of life. The intervals of time between additional exposure could then be more accurately established from the rates found on the first two specimens so as to produce the most vital points on a time versus corrosion curve. Exhuming of the last specimen would preferably be timed to occur only a short time previous to complete penetration.

When their existence is suspected, a test for stray earth currents is desirable while the trench is open. An earth-current meter is used for this purpose. Where any appreciable current is found the final results will be known to be affected by that cause and comparatively high rates of corrosion in certain ordinarily less corrosive soils would be explainable.

Samples of the soil at the test sites for laboratory corrosivity analysis are usually taken from pipe and other elevations when specimens are being buried. Field survey methods are also applied especially by such means as the Shepard rod.

### Period of Burial

The length of time specimens remain buried before removing the first depends upon the purpose. Should the desire be to determine the rate of penetration with time the initial removals will be at shorter time intervals than the later. The rate of corrosion is comparatively rapid at first and then becomes approximately uniform or continues at a considerably less rate. If the soil has been diagnosed as particularly corrosive due to conditions such as swamps, the first specimen may advisedly be exposed in one to two months. The following intervals between exposures would then be determined from the measured rate on the first. For instance suppose the initially exposed specimen after two months burial had a measured maximum pit depth of 10% of the wall thickness. The second interval may be extended to twice the initial or four months. If the second interval produced an average rate of penetration equal to the first the next time interval would usually be established equal to the second interval so as to determine as accurately as possible the length of time the initial high rate of penetration persisted. In a few extremely corrosive soils the intial high rate persists until complete failure occurs. As the rate decreased the time intervals would be lengthened as it is desirable to time the final removal as near to complete failure as possible. Earth current measurements, determination of resistances in the field and laboratory soil tests conducted at the time of burial are desirably repeated at the time of exposure.

If the periods of burial, except in extreme conditions, are timed as nearly as possible to full years there will be less fluctuations than shorter intervals as the cycle of soil moisture and other conditions affecting the rate of corrosion will be complete.

### Removal of Specimens

During the excavation for the purpose of exposing specimens the conditions of the soil are noted. It may be observed that the overburden on certain specimens is more mixed than others or the soil immediately adjacent to the metal may contain more of a higher soil strata than a lower. Such conditions are observable during careful exposure and are noted to possibly explain variations in corrosion rates. While care may be used to backfill when burying specimens so that only the soil of the strata at pipe level is against the pipe, the added check of observing during removal increases the value of the whole test.

As the specimen is approached during excavation removal of the soil proceeds with greater care so that minute examination may be made to make note of observable color or moisture changes, detection of products of corrosion in soil immediately surrounding the specimen, the appearances of the specimen while foreign particles still adhere and to avoid unnecessary damage to the sealed ends.

### Cleaning Specimens

The detailed examination of specimens is usually conducted in the laboratory. After removal such adhering matter as can be rubbed off or easily brushed off is removed and the sample packed or stored for transportation. When the specimen is not separately boxed it is packed so as to avoid movement during transportation which may physically remove any of the metal or some of the foreign matter adhering to the metal. In the laboratory additional notes are made of the surface condition before mechanically removing adhering matter. The surface is then cleaned with ammonium citrate or other cleansing liquid which may also aid in softening the products of corrosion or foreign material still remaining in the pits. More detailed description of examination of specimens will be discussed in corrosion surveys.

### Soil Classification

Soil science is a comparatively new but well defined branch of knowledge which is frequently applied in agriculture, forestation, dust storm mitigation, flood control, etc. and therefore needs only minor changes for adaptation to the problem of soil corrosion. Complete soil classification would require the services of a specialist but for the purposes of soil corrosion mitigation the subject may be confined within a sufficiently narrow scope to be acquired by the engineer whose duties include the detailed study and prevention of corrosion. The United States Bureau of Agriculture has been a leader in the development of soil science and the following quotations are from the "Development and Significance of the Great Soil Groups of the United States" by Charles E. Kellogg in Miscellaneous Publication No. 229, June 1936. "Before about 1870, in

Russia, and up to a later date in western Europe and North America, studies of soils were more or less incidental in several fields of science, including geology, chemistry, and botany. Students of plant nutrition and agronomy were forced to make certain assumptions regarding soil but those studies were not conducted in such a way as to give any basic knowledge regarding the fundamental nature of soil and its development. . . . Many of these early studies of soil from the geological point of view were fruitful, provided comparisons were confined within small areas in which conditions of climate, native vegetation, relief, and age were essentially uniform. . . . The confusion, as may be seen from what follows, came about by assuming that a direct relationship exists between the nature of rocks and of the soil that develops from their weathered products; whereas many other factors especially constructional biological forces, more frequently dominate the situation in soil development.

"Furthermore, the older concept of soil as a static body is wholly inadequate. . . . It is teeming with microorganisms of great importance and of great variation from one soil to another. It is a continual process of change and development. . . . Beginning about 1870 in Russia and somewhat later in western Europe and North America, it was observed that certain groups of soils were confined to rather distinctive climatic and biological regions, whereas geological deposits are distributed quite promiscuously over the world. Excavations in these soils, exposing a section of the soil, showed that they were made up of a series of layers, or horizons, called, collectively, the soil profile. These layers frequently vary enormously in physical and chemical properties; yet, unlike the layers in a body of sediments, a genetic relationship exists between them. Such layers in normal soils are the products of soil-forming processes impinged upon the material produced through weathering.

"With the recognition that each soil has a definite morphology as well as a distinct geography came the logical conception of soils as an independent natural body. Naturalists then began to study the soil from an entirely scientific point of view and to accumulate a body of knowledge bearing upon this line of interest. Thus, about 1870 a new discipline arose—pedology. The fundamental principles elucidated by this science are, of course, those upon which the applied phases of soil science (agrology) rest; but their study and formulation are not wholly dependent on possible future application.

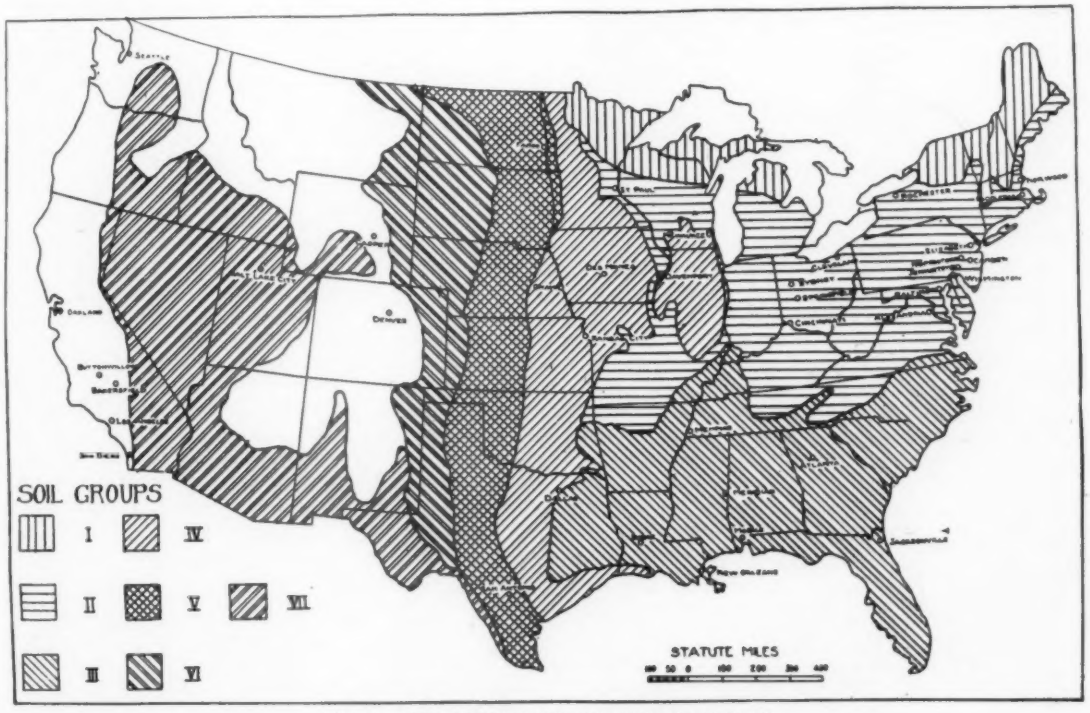



FIG. 2. SOIL GROUPS OF THE UNITED STATES

**Group I** is limited to the extreme northern part of eastern United States. These soils are dark colored acid soils developed under coniferous forests.

**Group II** covers the northern half of eastern United States south of Group I. They are acid soils developed under deciduous forests.

**Group III** covers the southern half of eastern United States. These soils are developed under a heavy rainfall and a subtropical climate and are as a rule more acid than the soils of Group II.

**Group IV** covers a strip extending from east Texas north to Minnesota. They are dark colored prairie soils with a grass cover and are somewhat acid.

**Group V** consists of another strip about 300 miles wide bordering Group IV and west of it. These soils are also dark colored and have a grass cover, but they contain considerable lime at some depth. They are nearly neutral at the surface and alkaline in the subsoil.

**Group VI** extends from the base of the Rocky Mountains eastward to the western boundary of Group V. These soils differ from Group V in that the lime is nearer the surface and the soils are brown instead of black.

**Group VII** includes the remaining arable land of the country, so far as it has been possible to classify it. These soils are developed under desert conditions of low humidity and little precipitation. They are light colored alkaline soils.

The Nature of Soil—It has been mentioned that the soil is made up of several horizons, called, collectively, the soil profile. These horizons vary tremendously in different soils; many that are strongly developed in some soils are only weakly developed in others.

Soil Color—Each soil horizon has a distinctive color, texture, and structure. Certain colors may be found locally as an inheritance from the parent rock. Although color in itself may be of minor importance it is frequently a significant criterion of other soil conditions of extreme importance. The content of organic matter in soil is such a characteristic and its presence is, to a considerable extent, evidenced by the color of the soil. Other factors being constant, soil colors may range from white, through the browns, to black, as the content of organic matter increases. The most stable portion of the decomposed organic matter, humus, is darker than the raw, or less well decomposed, plant remains. Raw woody peat is brown, whereas the well-

*(Continued on page 74)*

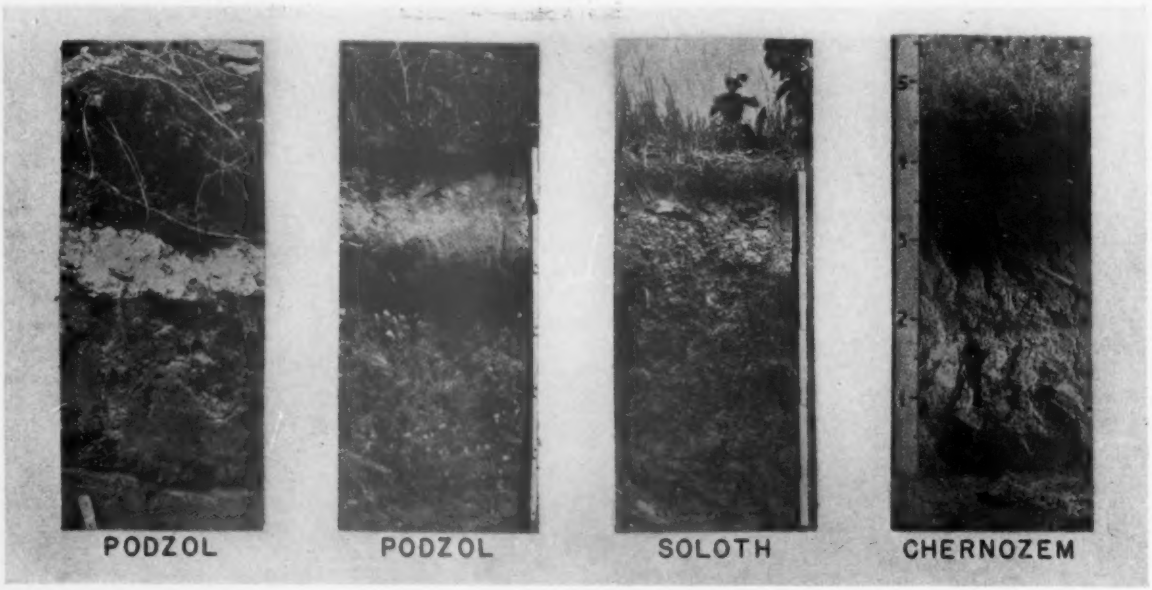



Fig. 3

Four soil profiles. A Podzol shown at the extreme left has a thick covering of forest duff, underlaid abruptly by a whitish horizon. The other Podzol soil has lost much of the surface duff through burning: in this picture a dark brown ortstein immediately under the white leached horizon stands out distinctly.

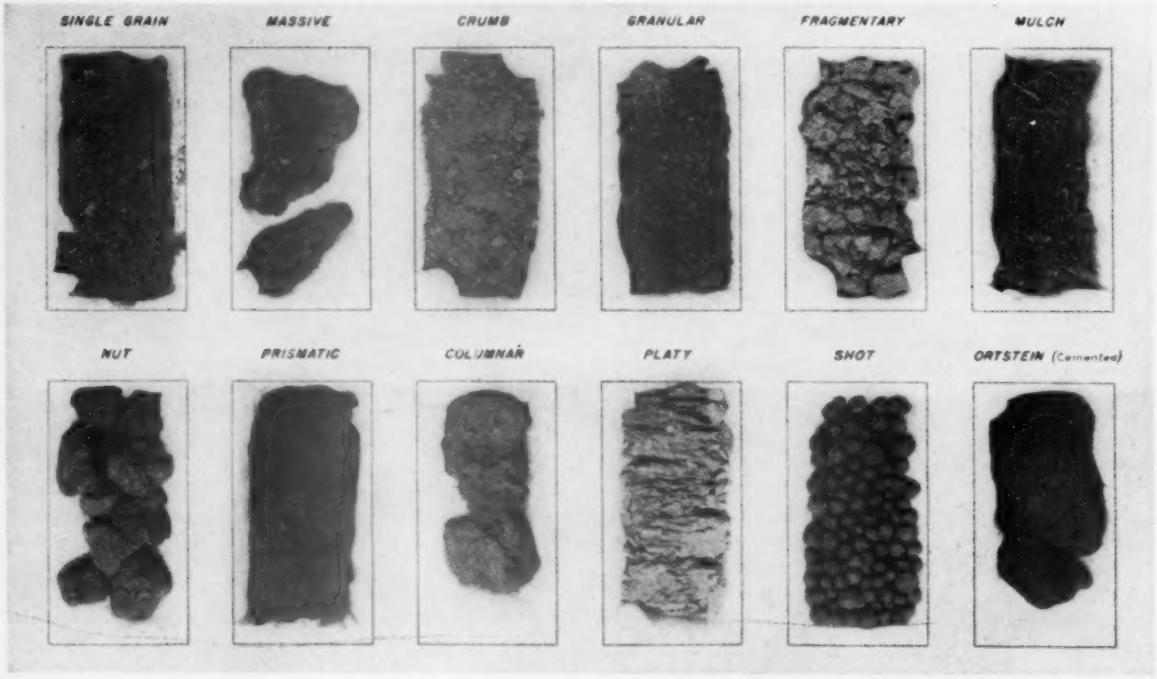
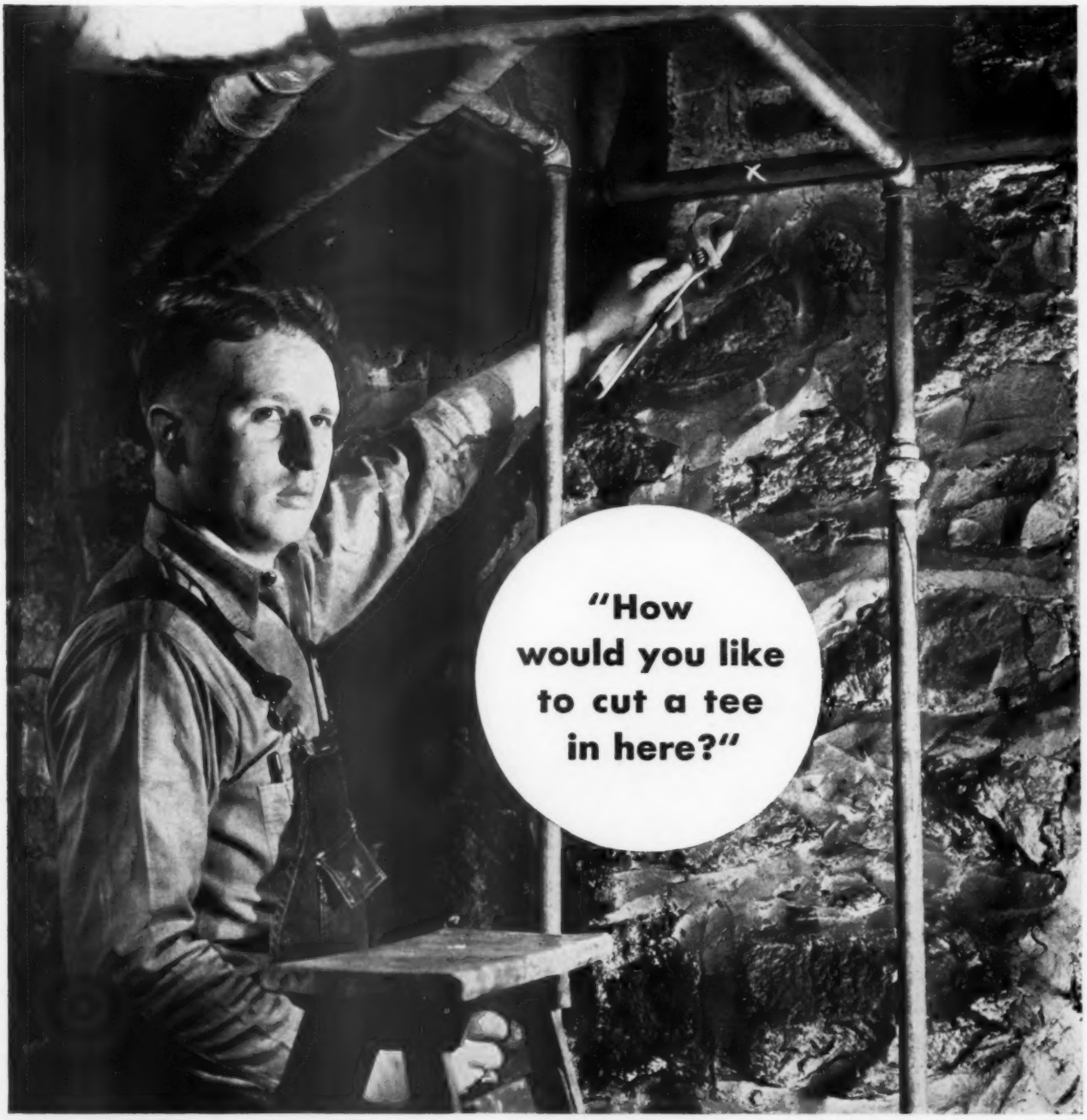



Fig. 4

Several important types of soil structure. All of these structural types are produced through the operation of soil-building processes, except that the single grain, fragmentary, and massive may be developed or may be inherited from the parent material. The structure of soils is of great importance in studying their genesis or ecological relationships.



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**M. B. SKINNER CO.** *Est. 1898* **SOUTH BEND, IND.**

# The Application and Trends of Modern House Heating

**W. H. McInnis**

General Sales Manager
Memphis Power & Light Company
Memphis, Tenn.

"HUNDREDS of thousands of years ago, before man learned the art of sowing and reaping and before he had successfully domesticated the ox, the horse and the reindeer, he was required to build a shelter which afforded protection for himself and his family against heat and cold.

"Following pre-historic times, every civilization throughout the world, each with its peculiar climatic conditions, met as best it could with its limited means the problems of conquering the elements within doors.

"Today, the architect has the same problem that faced the pre-historic man with regard to heat and cold and humidity. However, his approach and solution are an entirely different one because with the advent of the modern air-conditioning plant, with its humidified warm air to take care of the winter chills, and its dehumidified cool air to counteract the unpleasant hot days of the summer, his problem of heating and cooling is greatly simplified."

This is what practically all architects, engineers, and builders are saying about the future of indoor comfort. Not only the application of house heating, as we have known it, is changing, but the name we have applied to it will change, and in the future all of us in the gas business will be speaking more appropriately of the service we are rendering if we call it Winter Air Conditioning. Fortunately for us, we have the ideal fuel to furnish this service.

However, before we discuss the Ultimate in Winter Air Conditioning, which is going to be the trend in the future, I want to discuss the older methods of Gas House Heating which have meant so much to the gas companies as revenue building services. We cannot neglect the selling of these, for I am sure that they will be the means of producing revenue in greater volume for many years to come, than the Winter Air Conditioning, which no doubt, will require a great deal of sales promotion before it is accepted by the public to a point where it becomes the greatest revenue producer for the gas company.

I think you will agree that it is a gas company's obligation to sell heating equipment to fill the needs of the user. It is obvious that the Modern Winter Air Conditioning systems, because of first cost, cannot be readily sold to customers whose incomes are less than average and unfortunately, these represent a large part of our customers, in other words, the masses, and in order for us to sell our services in volume, we must sell equipment that these customers can afford to buy and operate. In this category come the old familiar flame heater, radiant heater, circulator, floor furnace, and gas fired radiator.

### Radiant and Flame Type Heaters

The two first mentioned, namely the flame heater and the radiant-fire heater, on account of the low first cost, are easiest to sell in volume and properly applied, they render a first-class heating service. It is not necessary for me to discuss the application of these two appliances since most companies in the South have done an outstanding job of selling them. I might mention the splendid selling record of the several gas companies along the Mississippi River, Atlanta, and several others, in selling these heaters in the past years. They have had a tremendous effect upon the earnings of all gas companies and should not be neglected in their future sales programs. They deserve sustained sales effort, year after year, in the revenue building program.

Experience has taught us that the flame heater and the Chill Chaser introduce the customer to the advantages of gas heating, and many customers who can afford better heating services replace these smaller units with modern controlled equipment.

It is interesting to look at the record of the Memphis Power & Light Company, which with the Memphis dealers, has been aggressive in promoting the sale of these two most important revenue builders.

On December 31, 1936, the total number of Residential Gas customers served by the Memphis Power & Light Company was approximately 35,000. We can see, therefore, that during the past eight years, there has been one or more flame type or radiant type heater sold for practically every customer that it serves.

*Sales of Radiant and Flame Type Heaters by Years 1928 to 1936, Inclusive*

| *Year* | *Sales* |
|---|---|
| 1929 | 6,550 |
| 1930 | 2,496 |
| 1931 | 2,138 |
| 1932 | 1,796 |
| 1933 | 2,120 |
| 1934 | 7,453 |
| 1935 | 11,274 |
| 1936 | 6,351 |
| Total | 40,178 |

The record of another Southern gas company shows that during the 1935-36 heating season, 32% of all its estimated annual revenue obtained from the sale of heating equipment was from these two types of heaters. This indicates again that these two valuable heating appliances do sell, since they reach the mass market and become almost generally used.

Studies made during the past two heating seasons, of customers' records who purchased either flame or radiant type heaters, show that their gas consumption increased on the average of 13.4 MCF for the Memphis Power & Light Company and 16.7 MCF for another Southern gas company. These two types of heaters are important revenue producers, and the dealers will sell them for us if we promote the use of the service.

### Circulating Heaters

The next most popular heating device is, in my opinion, the circulating heater. On account of its portability and because of the familiarity of the public with the conventional type of coal heater, the market for the circulator is a large one. Manufacturers have kept in step with the march of progress of furnishing modernistic designs with eye appeal which attract buyers. The renter in particular who wishes to take his heater with him

*Presented before the Southern-Southwestern Regional Gas Sales Conference of A.G.A., Memphis, Tenn., March 10-12, 1937.*

if he moves, will buy a circulator in preference to other types of general heating equipment. It also has a market in types of houses where central heating equipment cannot be installed; for instance, in houses built close to the ground or where it is impractical to install equipment requiring more floor space and head room. It can be equipped with heat control devices, making it automatic and giving it practically all the advantages of central fired equipment and at a very low cost.

In the Commercial field where portable equipment is desired and large buildings are to be heated, the circulator furnishes the gas company with an ideal tool for competing with other classes of fuel, and splendid records have been made by Southern gas companies in this field. It would be folly for any gas company to neglect the market offered it by aggressively selling the circulating heater.

The following figures from Memphis indicate the possibilities for increasing the sale of circulators when a reasonable amount of advertising and other sales promotion is put into selling them. The large increase in sales for 1936 is a result of many furniture and department stores becoming interested in pushing them aggressively.

*Sales of Circulating Heaters by Years 1929 to 1936, Inclusive*

| *Year* | *Sales* |
|---|---|
| 1929 | 75 |
| 1930 | 100 |
| 1931 | 165 |
| 1932 | 150 |
| 1933 | 144 |
| 1934 | 112 |
| 1935 | 172 |
| 1936 | 517 |
| Total | 1,435 |

The records from one other Southern gas company show that during the 1935-36 heating season, 29.5% of their total estimated annual revenue obtained from heating equipment sales for that season was from circulating heaters.

### Floor Furnaces

During the past three years, the floor furnace has met with increasing popularity, brought about on account of its low first cost, its ease of operation, its low operating cost, and its ability to fulfill its heating requirements. It can be equipped with control devices, making it as automatic as any central fired plant. A comparison of installation costs in Memphis shows that two floor furnaces, which are usually required to furnish adequate heating for the small home cost about 50% less than a central fired coal heating plant.

Another point in favor of the floor furnace is that an installation can be made of two furnaces in less than a day whereas from three to four days are required to install a central fired plant. The inconvenience and annoyance to the customer are thereby lessened and sales resistance reduced.

Realtors in particular have been large buyers of this type of equipment in Memphis, to make rentable or salable, re-conditioned homes.

Several manufacturers are now making floor furnaces which include forced air circulators with filters and humidifiers. Others are building automatic control equipment in their furnaces, thus making it simpler and cheaper to install the heating unit.

A word of caution to any company which has not had experience in selling floor furnaces, might be in order:

1. Use care in determining the capacity and proper location of the equipment required to do the heating job.
2. See that the installation is made safe by providing adequate venting facilities and sufficient room for air circulation.
3. See that the user is given fundamental instructions in operation.

The market for floor furnaces is large, and it can be secured through aggressive salesmanship on the part of the gas company, manufacturers, and the dealers. Without a doubt, continued improvements will be made in floor furnaces and in the future, I look for them to fill the heating requirements of the customer in the modest home who desires all the comforts and conveniences of a complete winter air conditioning system.

Our own record shows consistent increases in sales of floor furnaces during the past three years, as will be seen from the following tabulation. Other Southern companies have shown a like record of sales:

*Sales of Floor Furnaces by Years 1934 to 1936, Inclusive*

| *Year* | *Sales* |
|---|---|
| 1934 | 157 |
| 1935 | 320 |
| 1936 | 1,018 |
| Total | 1,495 |

In checking the consumption of 50 customers after they had purchased floor furnaces, against that used during the previous year, it is revealed that the average annual consumption of gas was increased 104 MCF per customer.

### Gas Fired Radiators

One of the most flexible types of heating that we have to offer is the gas fired radiator. It can be placed almost anywhere, which is not the case with many types of heating equipment. Its ease of installation, its ease of control, its adaptability to automatic control, and its low operating cost make it a most desirable heating medium. The gas fired radiator is especially adapted to second floor heating where vents are not easily obtained and where it is difficult to make installation of other types of heating equipment.

It also has an application in hallways or other rooms where supplementary heating is required. In Natural Gas areas, it can be used as a humidifier in homes heated with radiators or warm air furnaces. It is a splendid unit for capturing the Commercial market because of its low cost and its flexibility of use. Care must be exercised in placing gas fired radiators in these establishments. In corner buildings, venting is usually required whereas buildings in the center of the block may not require all vented radiators.

### Central House Heating Conversion Burners

In the replacement field, the conversion burner will continue to hold a prominent position. Many homes now using oil or coal have splendid heating equipment, representing a considerable investment. This is true especially in the medium and larger class of homes where sectional type boilers are installed. Higher operating efficiencies are obtainable due to the increased heating surface built into the boiler. Under improved methods of installation and engineering application we have been able to give this class of customer a very satisfactory and economical heating service through the medium of the conversion burner. The increased efficiency of the conversion burner when installed in this type of equipment compares very favorably with the operating cost of gas designed equipment. Consequently, the much larger initial investment in gas designed equipment is not justified by the saving in operating cost, as compared with conversion burners.

There are customers who for reasons of their own, have a personal preference for the conversion burner. The ease with which this equipment can be removed is a sales point in its favor in some cases.

We have a few customers using the conversion burner who do not wish to make a large investment in

heavy duty heating equipment, but wish to enjoy the comforts and conveniences of automatic gas heating. In this class comes the transient resident and there are many of them these days, such as the traveling salesman and the representatives of national organizations.

In Memphis, nearly 100 conversion burners replaced oil or coal during 1936, representing an average gain to the company of approximately 120 MCF per customer involved. Experience has taught us that we may anticipate an increase of from 90 to 100 new customers per year for several years to come, through the medium of the conversion burner.

So much for the conventional types of heating equipment. Now let us take a look at the turn of events that has affected the thinking of the American family as regards their comfort in winter.

*Winter Air Conditioning*

Manufacturers of various kinds of equipment, such as winter air conditioning, oil burners, and stokers, are placing a great deal of emphasis on automatic control. All this advertising of Cleaner, Economical, Carefree heating systems has moulded public opinion. Mr. Homeowner has become heating plant conscious. What was once looked upon as a mildly unpleasant chore has now become a dreaded task, and the dirt, drudgery, and inconvenience connected with hand firing belongs to the Kerosene Lamp and Cotton Stocking Age.

Home repairing and improvement, started during the depression years to stimulate buying and employment, have grown into a great modernizing movement that is sweeping the nation at the present time. The United States is spending more money on home improvement than on any other item.

Look at the parade of new building materials and equipment, insulation, comfort cooling, model kitchens, bathrooms, modern furniture, and all sorts of electrically driven, labor saving appliances for the home, then ask yourself where our Industry belongs in the procession.

Air Conditioning has exerted a tremendous influence on modern house heating. The public mind is being educated on the fundamental requirements of proper temperature, humidity, air cleanliness—in other words, Winter Air Conditioning. The result has been that architects have specified this equipment in practically all of the better class homes, and many old dwellings have replaced worn out or obsolete plants with modern forced warm air heating including filters, humidification, and summer cooling. Even the modest home in the $3600 class has a less elaborate system performing the fundamental functions of air circulating, automatic control, and humidity. One speculative builder in Memphis who is finding a ready market in this class of home expects to build 200 homes in 1937. They will all be heated with gas fired forced air furnaces installed in a small inclosure off the central hall.

A typical indication of this trend is shown in a statement made in an address by L. R. Boulware, Vice President of the Carrier Corporation, one of the oldest and largest air conditioning manufacturers at the 1936 E.E.I. Sales Conference. It is as follows:

"Not only becaue of the increasing practicability of the small self-contained, portable summer air conditioning units, but—more important—because of the good apparatus and eager market now available for domestic winter air conditioning sales, I believe the time is no longer in the future but is now with us, when the home market should be approached and sold. This is particularly true by reason of the fact that complete winter air conditioning installation costs now very little more than a good heating outfit for gas or oil."

Another indication of the trend is the entrance into the heating market, of the large national electrical manufacturing companies with boilers and furnaces designed for both gas and oil, also to supply both winter and summer air conditioning.

One manufacturer has developed a low priced forced air central heating plant that can be installed in the attic, thus opening a new market for the sale of gas, namely, the home where space is not available for the installation either in the basement or on the main floor.

In fact, the manufacturers have provided us with such a wide variety of equipment that winter air conditioning can be installed in almost any home, regardless of the difficulties that may exist.

Let's give each proposed heating installation the thorough consideration that it deserves, analyze the customer's need, his ability to purchase, and recommend where feasible, the modern winter air conditioning system. Gas is admittedly the ideal fuel for modern automatic heating appliances. A complete air conditioning plant of today can be tucked into a space four feet square.

Let's not neglect another feature of home modernization which will give the homeowner as much lasting satisfaction as any other investment he can make. The space made available in the basement with gas heating, can be made into living quarters to suit the whims of any person, where more hours of pleasure will be spent than perhaps in any other part of the house. Let's back up our Association in its efforts to create a wider public acceptance of gas for heating and basement modernization in the building of new homes. If local gas companies will give as much publicity and sales promotion to modern basement planning as the Electrical Industry has to the modern electrical kitchen, then there will be few new homes built in the future without this added convenience feature. The support of local building material dealers can be enlisted to help promote this movement. The manufacturers they represent can be counted on to give support to the promotion of it, for they have already come a long way in making the plan practical by putting on the market, attractive and inexpensive wall and floor coverings. The basement which contains a gas winter air conditioning unit, thus increasing the livable area of the home, offers an opportunity to the man of the house to exercise his individuality, and it can be made to suit his fancy. He can make himself a ship's cabin, a bar room, a den, a game room, a recreation room, a children's playroom, or if he is the type of fellow who does a good part of his office work at home, he can convert his basement into a modern and attractive home office.

There are so many sales allies willing to cooperate with us in our sales program that we should encourage them to do so and assist them in making their businesses more profitable so that they will continue to help us sell our product. Let's bring into the fold our rightful sales allies, the architect; the building contractor; the furnace dealer; sheet metal contractor; the electrician; the plumber; building material; floor and wall covering; paint and home insulation sales agencies. Each of these is in a position to benefit every time a modern winter air conditioning system is installed, and although I am aware that the straight gas company looks upon the electric company in their town as a competitor, it is time for them to join forces to the end that every new home built will receive the benefits which can only be derived from the combined application of gas and electricity, to furnish all year round Comfort and Health.

*(Continued on page 73)*

# MAGIC CHEF

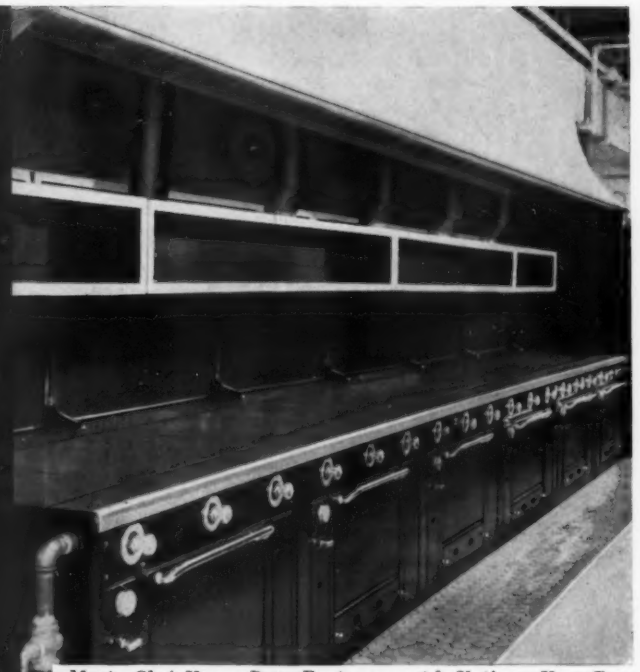
UNIFORM
HEAT TOP

FAST TOP COOKING

SUBSTANTIAL GAS SAVINGS

UNIFORM HEAT CONTROL

INCREASED CAPACITY



*Magic Chef Heavy Duty Equipment with Uniform Heat Tops in the main restaurant of Marshall Field & Co., Chicago.*

MODERN restaurants, hotels and institutions favor Magic Chef Heavy Duty equipment because it is designed and built to meet present-day requirements of speed, economy, cooking capacity and flexibility. • The Uniform Heat Top provides a fast top cooking area with accurate uniform heat over the entire top cooking surface of the Magic Chef Heavy Duty gas range. • The Top Heat Control is simple, positive and accurate. Top burners light automatically when gas is turned on. Any desired degree of heat can be secured readily by a mere turn of the graduated dial. • If you are interested in faster, better, more economical cooking, write for details.

**AMERICAN STOVE COMPANY**

BOSTON • NEW YORK • ATLANTA • CLEVELAND • CHICAGO
ST. LOUIS • PHILADELPHIA • SAN FRANCISCO • LOS ANGELES

The contents of four large kettles can be cooked at the same time on one 32-inch unit at fast, medium or slow heat or at varied temperatures on each cooking plate, if desired. Four center fire ranges would be required to do the same amount of fast cooking in the same time and temperature.

The heat is positive and satisfactory because it is even all over the entire cooking surface while on center, front and side fire tops the heat is graduated from high to low temperatures.

*Magic Chef*
AMERICAN STOVE COMPANY

LOOK FOR THE RED WHEEL WHEN YOU BUY A MAGIC CHEF

**MAGIC CHEF HEAVY DUTY** *Automatic Equipment* **FOR MODERN GAS COOKING**

# Results From Training Gas Service Employees and the Basis for Future Selective Hiring*

By
C. A. Renz and Oscar Cook
Los Angeles Gas and Electric Corporation

A FEW years ago, gas appliance adjustment service was portrayed to the public in cartoons symbolizing the helper as a "stooge" and the always-forgotten pipe wrench or lead pot. Seniority in the fitters' trade was the only qualification.

Job training, as defined at the present time, was considered but judged unnecessary for gas appliance servicing, as rendered a decade ago, was deemed a nuisance by the public and an expense by the utility. Hence, why educate and support a nuisance.

The threat of competitive fuels necessitated utilities to analyze practices in all ramifications. Gas appliance manufacturers met the challenge. Advertising managers stressed modernity, beauty, convenience and service rendered by these new designs, making it imperative for utilities to modernize their mechanical adjustment personnels.

By keeping pace with these developments, the modern gas serviceman was forced to undergo virtually as many changes as the appliances themselves. Now he is required to have a thorough knowledge of modern ranges, water heating, refrigeration, and space heating and unit heating equipment. Other domestic, commercial and industrial appliances must—of necessity—be simple in his eyes.

While the selling of modern gas appliances was very important during the transition period, keeping them sold against competitive fuels is now even more vital. To accomplish this, it is essential to have a staff of customer contact men, trained to service modern gas appliances, with their multiplicity of precision controls, concealed valves, variety of construction; to counsel prospective purchasers of appliances, instruct customers to afford themselves the maximum utility from the appliances; render an intelligent service to each customer; recognize the necessity of building gas load; and further, advise only those appliances which would not be a future source of service trouble. The acquisition of such a staff is the result of planned training as set forth in the following discussion.

*Presented at the Spring Technical Conference, Pacific Gas Association, Los Angeles, California, March 18-19, 1937.

## L.A.G. & E. Corp. (Gas Dist. Dept.) Educational Program Started October 1, 1933

### Training Procedure

To obtain the full scope of the educational work covered by the Educational Division of the Gas Distribution Department, readers of this report are advised to obtain Volume 26, 1935 Proceedings of Pacific Coast Gas Association, which includes the well co-ordinated courses covering the mechanical training, high bill complaint procedure, load building classes (briefed from the American Gas Association Salesmanship Course) and the cooking instruction prepared for and given to a selected group of regularly employed servicemen. It also includes the additional procedure and supervision of training for new service employees. The procedure outlined in this report, "Training Service Men," submitted by R. C. Terradell, Gas Distribution Engineer, is the same program of educational classes which is sponsored by the Gas Distribution Department.

### Selection of Servicemen for Training

The Gas Distribution Department personnel, consisting of approximately 640 men—made up of 270 customer contact men (routemen assigned to meter turn-on, closings, or appliance adjustment work), 100 gas meter repair men, approximately 270 gas main and service construction men, and about 100 clerical employees—were analyzed before the projected educational program was inaugurated.

Inasmuch as the need for trained men, to meet this rapid transition from old manually operated to modern automatically controlled appliances, was greater in the customer contact field, the educational classes were directed toward the group which was grounded in the fundamentals of meter work, customer contact and appliance adjustments. Initial courses disclosed that this group included employees who were unsuited to the new phase of customer contact work, and were accordingly transferred to work which was distinctly mechanical in scope. When this analysis was fairly complete, the courses projected were given to the selected employees, on company time, until the entire group had been covered. The resultant grade averages of each employee were recorded on personnel cards for each employee. The cross-sectional grade of all examinations was then the grade which was advanced as a standard to new employees being given any of the respective courses.

The average grades of the Department courses are as follows:

| Section | *No. of Men* | *Avg. Grade* |
|---|---|---|
| I—General Information Relative to Gas Industry | 306 | 89 |
| II—Gas Utilization | 308 | 89 |
| III—Mains, Services, Regulators, and Meters | 306 | 85 |
| IV—Load Building | 248 | 79 |

*EDUCATIONAL COURSES*

| | *No. of Men* | *Avg. Grade* |
|---|---|---|
| Cooking Instruction | 114 | 82 |
| High Bill Investigation | 132 | 79 |

### Operating Facts Resulting From Educational Program

A composite analysis of 7,284 customer orders, exclusive of turn-on

and closing meter orders, covering the years 1934 and 1935, showed as follows:

| | |
|---|---|
| 1. Total number of customers (2 year service records studied) | 7,284 |
| 2. Customers having no service call in two years | 3,437—47% |
| 3. Customers having but one service call in two years | 2,200—30% |
| 4. Customers having two service calls in two years | 1,023—14% |
| 5. Customers having three service calls in two years | 371— 5% |
| 6. Customers having four or more service calls in two years | 289— 4% |

An analysis of completed service orders during this period showed as follows:

| | *1934* | *1935* |
|---|---|---|
| High Bill Orders completed | 351 | 226 |
| Electrolux Orders completed | 138 | 228 |
| Special Service Orders completed | 392 | 366 |

An analysis of the completed High Bill Orders found in this study shows a decrease of approximately 36% during this period, yet there were 83% more "degree days" and a 16% increase of send-out in 1935 over the year 1934. The information gained from High Bill instruction, given since this study to the majority of assigned routemen in this district, will be used on future complaining customers encountered while completing other than High Bill Complaints, and thus forestall many possible High Bill Orders.

*Analysis of High Bill Complaint Expenses (1932-1936)*

*Entire System L,A,G, & E. Corp.*

| *Year* | *Total Complaints Completed* | *Unit Cost Per Complaint* | |
|---|---|---|---|
| 1932 | 19,298 | $1.52 | |
| 1933 | 17,432 | 1.33 | |
| 1934 | 13,563 | 1.30 | (9 months) |
| 1935 | 14,525 | 1.31 | |
| 1936 | | 1.21 | |

An analysis of the completed Electrolux Orders found in this study shows an increase of approximately 65% in 1935 over the year 1934. Inasmuch as total installations increased from 2,369 in 1933 to 21,000 in 1936, it is recognized that a corresponding increase in Electrolux Orders will follow in the future, and the value of trained servicemen will become evident.

*Analysis of Trend of Electrolux Order Expenses (1932-1936)*

*Entire System L.A.G. & E. Corp.*

| *Year Ending* | *Unit Cost Per Order (1932 Basis = 100)* |
|---|---|
| 1932 | 100% |
| 1933 | 100% |
| 1934 | 86% |
| 1935 | 72% |
| 1936 | 63% |

### Altered Operating Policy on Special Service Orders

An analysis of the Special Service Orders shows a decrease in the 1935 completions over those of 1934, due in part to the request that dispatchers make full inquiry of customers before issuance of Orders. This inquiry made it possible to issue Gas Inspection Orders which were completed later by regular routemen, rather than by special, trained men as had been the policy before this study. From a previous study, made during the winter of 1934, it was indicated that 69.2% of the Special Orders received, by other than Distribution Department clerks, resulted in no need for issuance of the Special Service Orders. With this altered policy, Special Orders are continuing to decrease, thus ultimately removing other special, trained men from this work. This revision increased the latter employees' daily production from 50 to 70% in orders completed, when assigned to the varied duties of regular routemen.

### Altered Operating Policy on General Orders

An analysis of General Orders (orders issued by employees which requested another employee's return to complete specified work) for the years 1934, 1935, and the first eight months of 1936 is shown in the table below.

*Trend of Special Service Orders Completed 1933-1936*

*Entire System L.A.G. & E. Corp.*

| *Year* | *Completed Orders (1932 Basis = 100%)* |
|---|---|
| 1933 | 100% |
| 1934 | 67% |
| 1935 | 67% |
| 1936 | 45% (11 months) |

This study shows that the number of General Orders issued decreased from 413 in 1934 to 80 during the period of the study. Orders issued for another employee to return and calibrate ovens, adjust ranges, water heaters or space heaters decreased from 135 in 1934 to 4 in 1936. Orders issued requesting the Industrial Shop to call for obsolete appliances or those requiring reconstruction work on an appliance to enable the use of natural gas, decreased from 85 in 1934 to 6 in 1936. Trained in the mechanics of gas appliances, the servicemen thus reduced the number of repeat calls from 53% of the total in 1934 to 12% in 1936. Not only were they able to complete their service work on the first calls, but they were positive in their knowledge of obsolete appliances and indicated this condition to the customers, thus reducing appliance reconstruction work about 30% in this period. This reduction in appliance reconstruction work indicated that their knowledge of space heater quality and size requirements, plus sales slants, is used to the greatest advantage in replacing old appliances with modern appliances. General Orders are then gradually asuming their proper position, viz., as an indicator of the necessity for Corporation equipment repair. General Orders issued for this purpose increased from 42% in 1934 to 63% in 1936.

| | *1934* | *1935* | *1936* |
|---|---|---|---|
| 1. Total number of consumers in the district studied | 7,272 | 7,284 | 7,291 |
| 2. Total number of General Orders issued in the district studied | 413 | 300 | 80 |
| 3. Total number of General Orders issued for ranges, water heaters, and space heaters—either calibrated or adjusted | 135 (33%) | 82 (27%) | 4 (5%) |
| 4. Total General Orders requesting gratuitous reconstruction work on Customers' appliances to utilize natural gas | 85 (20%) | 61 (20%) | 6 (7%) |
| 5. Checking installations (not company contracts) | 23 ( 5%) | 27 ( 9%) | 20 (25%) |
| 6. Work on our meter equipment | 170 (42%) | 130 (44%) | 50 (63%) |

*General Orders Completed 1933-1936*
*Entire System L.A.G. & E. Corp.*

| *Year* | *Completed Orders* |
|---|---|
| 1933 | 14,266 |
| 1934 | 8,789 |
| 1935 | 5,870 |
| 1936 | 2,173 |

### Trained Service Employees Built Gas Load

Employees trained in the American Gas Association Salesmanship Course are capable of carrying out instructions should the case arise. The fact that they submitted 8,000 appliance prospect cards during a load-building contest indicates their interest in retaining the gas load. Further, the fact that sales resultant from the 5,971 prospects submitted, during the first eight months of 1936, show far greater than the year 1935, indicates that they are able to differentiate between "suspects" and prospects.

Sales Department reports for the first eight months of 1936 show that sales of appliances, made from Gas Distribution Department prospects, amounted to $231,197. On the basis of established appliance load factors, the annual load retained for this Corporation would be as follows:

| | *8 Mo. s 1936 Total Sales* | | *Cubic Feet Annual Load/Appliance* | *Total Annual Cu. Ft. Load Retained* |
|---|---|---|---|---|
| Ranges | 860 | @ | 12,000 | 10,320,000 |
| Water heaters | 791 | | 40,000 | 31,640,000 |
| Electrolux | 416 | | 10,000 | 4,160,000 |
| Furnaces | 55 | | 15,000 | 825,000 |
| Steam Radiators, Wall heaters, Space heaters | 272 | | 5,000 | 1,360,000 |
| Total appliances sold | 2,394 | | | 48,305,000 cu. ft. |

48,305,000 cu. ft. @ $0.70/M cu. ft. = $33,813.50, annual revenue retained, or approximately double the total annual expense incurred in the educational program.

### Summary

An analysis of labor turn-over in the Gas Distribution Department shows that the average monthly employee on the payroll has a seniority of 10.2 years service. In the particular group of monthly employees, employed since March 1, 1933, it shows the turn-over has been 6.7%, with practically fifteen years required for one complete turn-over. Excluding transfers to better positions within the Corporation from the number leaving, the interval of time for a change in the entire personnel will be 22.2 years, which reflects extreme care in the selection of the employees, and permits long-range planning in the Department.

The Gas Distribution Department has fortified itself with trained servicemen in reduced routes of approximately 3,000 customers. These smaller routes, allowing the servicemen to become familiar with his entire customer group will engender good will commensurate with the service provided which will aid in bringing customers to a fuller appreciation of their service costs. In consequence, the customer of this utility will be afforded a service, which must be unequalled, else further inroads be made into its domestic load.

Selected and proven servicemen of the Gas Distribution Department capable of counselling on appliance performance and service, when completing 500,000 customer calls annually, and who have cemented the service department of manufacturers, department stores and appliance dealers into a united service organization of experts have presented a score card, the results of which will be the templet of future customer contact men for the department.

### Trained Gas Service Employees—Basis for Selective Hiring

Effective December 1, 1936, the Los Angeles Gas and Electric Corporation adopted a program enlarging the scope of its Personnel Department work to cover the rating and testing of employees in order that their duties may be carried on most satisfactorily—both to the company and to themselves. The program inaugurated includes a system of keeping records of the performance of each employee which requires that supervisors in charge of the work state their views on each employee's interest, performance on the job, and his progress with the organization. The record of these performances is studied in connection with test scores, so in hiring new employees applicants may be secured whose test scores match those made by employees who are known to be successful in given lines of work. In other words, securing standards for new hiring. The applicant must meet the standards set by employees of known success on the job. Thus there are no arbitrary test requirements; the scores of successful employees already on the payroll are accepted as representative.

**THE GOODMAN STOPPER**

**The Reliable Shut-Off for Street Mains**

Equipped with Improved Patented Locking Sleeve, which locks both handles to the pipe. Stopper cannot slip. Gas cannot pass.

**Safety Gas Main Stopper Co.**
**523 Atlantic Avenue, Brooklyn, New York**

Details make perfection

FOR SEVENTEEN YEARS we have concentrated on a detail—*purification.* Today we confidently say: here is an oxide that meets the diverse requirements of diverse plants. Everything that research and large scale scientific manufacture can contribute to a material is embodied in GPM Iron Hydroxide, product of *Gas Purifying Materials Company, Long Island City, N. Y. and Providence, R. I.*

*Perfection is no detail*

# Modern Controls for Commercial Gas Appliances

By

**H. T. Ryan**

Robertshaw Thermostat Co.
Youngwood, Pa.

COMMERCIAL gas appliances are now recognized as constituting a distinct market in themselves. This has not always been the case. For many years the appliances which we now know as commercial gas appliances suffered under the handicap of bearing a multitude of names, with the result that concerted action toward the promotion of the market was very difficult. Many of these appliances fell within the category of domestic appliances, others were arbitrarily defined as industrial appliances, others came within the general classification of hotel and restaurant appliances, while still others were relegated to a position of complete individuality, having no known habitat.

This was the situation in the company with which I am connected. It had been our custom to classify all of the thermostats we manufactured into two general categories—domestic thermostats and industrial thermostats. As the development of gas appliances requiring automatic temperature control progressed, we found it increasingly difficult to place many new models of our thermostats into either of these two categories. For this reason, in 1934 we established a new classification entitled "Commercial Thermostats". For our own purposes we defined the three classifications as follows:

*Domestic Thermostats.* Those installed on appliances which are used in the home, such as domestic ranges, water heaters and space heaters.

*Industrial Thermostats.* Those installed on gas appliances in industrial establishments, such as core ovens, metal pots and linotype machines.

*Commercial Thermostats.* Those installed on appliances used in commercial establishments. Typical commercial establishments are hotels, restaurants, laundries and beauty parlors. A fairly complete list of appliances used in such establishments can be given as follows: heavy duty ranges, bake ovens, steam tables, coffee urns, deep fat fryers, water heaters, stew and soup kettles, dishwashers, sterilizers, toasters, laundry dryers, hair dryers, brooders, and vulcanizing machines. It must be borne in mind, however, that new commercial uses for gas appliances are being discovered or developed constantly. As an example, I might mention soil heaters used in nurseries.

What is the market for controls for commercial gas appliances? The answer is every commercial gas appliance. This may appear to be a broad statement and consequently should be justified by facts. Either it must be shown that the quality of the service rendered by the gas appliance is improved by automatic temperature control at no increase in cost of operation, or it must be shown that the quality of the service rendered is not impaired and the cost of operation is decreased. Either one of these would justify insistence upon automatic temperature control of the commercial gas appliance. The truth of the matter, however, is that automatic temperature control of the appliance accomplishes both of these worthwhile aims; that is, it improves the quality of the service rendered by the appliance and at the same time it decreases the cost of operation of the appliance. This statement can be made unequivocally in connection with every commercial gas appliance.

During the past thirty years, and in particular during the past five years, our company has conducted exhaustive experiments on the results to be obtained by the application of thermostatic control to commercial gas appliances. These experiments have been conducted in our own laboratory, but more especially in the actual commercial establishments in which the appliances are used. I am not going into a detailed analysis of each of these appliances for which experiments have been conducted. I believe, however, that the following information will be of considerable interest to all of you and will point out very conclusively the truth of my contention.

At the Waldorf Restaurant, Atlantic Avenue, Boston, three non-automatic coffee urns were metered for thirty days. Thermostats were then installed on these urns and they were metered for another thirty days. The reduction in gas consumption was slightly in excess of 50%. The amount of coffee served and the service rendered by the urn was, as nearly as can be determined, the same.

At a Walgreen Store in Chicago, Illinois, a coffee urn was metered for thirty days after the installation of the thermostat and compared with a preceding period of thirty days with the following results:

| | |
|---|---|
| Reduction in Gas Consumption | 28% |
| Reduction in Coffee Used ... | 22% |
| Reduction in Cream Used .. | 18% |

At Lessings, Incorporated, 120 Broadwy, New York City, eight Robertshaw Thermostats were installed on eight coffee urns, and every ninety days, enough cream was saved to pay for the thermostats.

Installations made at the Woolworth Store, 34th St. & 5th Ave., New York City, on eight coffee urns and five steam tables showed a reduction in gas consumption amounting to 10% on all the appliances. Incidentally, Woolworth conducted tests in six different cities with thermostats on steam tables. The reduction in gas consumption was never below 10% and was in one case as high as 60%.

The F. G. Shattuck Company (Schrafft's) has installed thermostats on all of their steam tables in all of their stores, and has also installed controls on a great many of their coffee urns and dishwashers. I am unable to give you figures in connection with economies in gas consumption as this particular advantage of thermostatic control was of minor importance to them. What they were vitally interested in was

*Paper read before Hotel & Restaurant Sales Conference, Benjamin Franklin Hotel, Philadelphia, Pa., March 2 and 3, 1937.*

the question of the quality of coffee and food, and it was this factor which finally decided them to equip all of their appliances with thermostats. It is interesting to observe that the installation of thermostats on the dishwashers resulted in a noticeable reduction in the breakage of china.

You will observe that considerable emphasis has been placed upon the reduction in gas consumption effected by the installation of thermostats. At first, one who is interested in the sale of gas might tend to feel alarmed about an accessory which brings about a reduction in gas consumption on a given appliance. This is a short-sighted viewpoint and one which is, I am sure, held by very few gas men. Gas as a fuel is wholly dependent upon the appliance which utilizes it. If this appliance is inefficient, the user will naturally feel that gas as a fuel is inefficient. Gas will be compared, unfavorably with other fuels, and the market for it will inevitably diminish. It is an economic axiom that, all other things being equal, the market for a product expands in direct proportion to the decrease in the cost of the product. If it can always be shown that gas can do a given job just as efficiently and at a lower cost than competitive fuels, or at the same cost and more efficiently, gas will continue to hold first place in the field.

You may wonder why the installation of a thermostat on a coffee urn reduces the consumption of coffee and cream. The flavor of coffee remains the same when it is held at a uniform temperature. On the other hand, if the coffee becomes overheated, it will become bitter. Then if it is permitted to cool and is reheated, the acidity will increase. This requires a frequent change of the coffee in the urn.

The facts concerning the use of cream are not so well known. In most restaurants a predetermined amount of cream is supplied to the customer with each cup of coffee. If the coffee is too hot, the customer, who is usually so much in tune with the American tempo that the delay of several minutes required for the coffee to cool is excruciatingly painful to him, will not wait for the coffee to cool but will request more cream. By having the coffee at the proper temperature, the number of requests for more cream is greatly diminished.

One of the main objections that arises from the use of coffee urns and steam tables which are not equipped with thermostatic control is that caused by the steam's escaping into the kitchen and dining room. Non-automatic appliances continue to give out great clouds of steam, while those equipped with thermostats emit steam only at intervals and when necessary. You can at once see the importance of this when you stop to consider that the most progressive restaurants are installing, or have installed, air conditioning equipment. The uncontrolled emission of steam by appliances tends to nullify the effectiveness of the humidity control of the air-conditioning equipment.

Steam tables that are not thermostatically equipped will either become overheated at times or will become too cold. This seriously affects the flavor as well as the appearance of the food. In fact, this feature, the quality of the coffee and food, is unquestionably the most important one to consider. Most restaurants are successful primarily because of their reputation for serving good food. Many of the most successful of eating establishments have founded their reputation upon coffee alone. We do not sell thermostats or commercial gas appliances; we sell better food.

So far I have confined my remarks to coffee urns and steam tables. On this program there is scheduled to appear a paper on deep fat fryers, so I will not bore you with information which may be repetitious. It is generally accepted that automatic temperature control is an essential of deep fat fryers.

I shall not go into detail regarding thermostats for bake ovens and heavy duty ranges, as there have been so many excellent papers presented at these meetings on this equipment that I am sure everyone is familiar with the necessity of automatic control of bake ovens.

A brief analysis of the type of thermostats which we have found to be most suitable for these various appliances may be of interest. On steam tables and coffee urns it has been our experience that the graduating action thermostat using the immersion type of thermostatic element gives the best control. On the other hand, the quick or snap acting type of thermostat or graduating action thermostats of large capacity are more suitable for deep fat fryers. The reason for this is evident. The fat must be kept to the highest possible temperature, but be so controlled that it will never go beyond the breaking down or carbonization point of the fat. When the food to be fried is placed into the fryer, there must be a very quick recovery of temperature. Otherwise the food will be greasy. On bake ovens both the graduating and the snap acting type of thermostats are used successfully, although by far the greater number employ the use of a graduating action control.

A new and potentially very large market for commercial gas appliances equipped with thermostats is sterilizers. The State of Massachusetts has recently passed a law that all establishments engaged in the sale of food and drinks must have a sterilizer for the dishes, glasses, and cutlery. There is no doubt that more states will pass such laws.

One of the largest markets for thermostatically equipped commercial gas appliances is the beauty parlor market. I understand there is still a difference of opinion as to which of the three industries, beauty parlors, slot machines and cartoon contests, is destined to be the largest in America, but one thing is certain and that is that the industry which caters to the embellishment of feminine pulchritude is definitely in the big business category today. Hair dryers must be automatically controlled. Thermostatically equipped gas hair dryers are, we have found, the most satisfactory appliance for this purpose on the market today.

The preceding remarks indicate, in a cursory way, the true extent of the commercial gas appliance market. I believe it is equally true that this market cannot be successfully retained, much less enlarged, unless an effort be made to replace the inefficient gas appliances which are now in use with ones which are efficient. I have also attempted to show that a gas appliance is not efficient unless it is under thermostatic control. This means, then, that we must do everything we can to bring about the conversion of this vast market of non-automatic controlled gas appliances to automatically controlled gas appliances. Our company has devoted a great deal of thought and study to this problem in order to determine the best policy to pursue in attaining this end. There are a number of difficulties which present themselves.

First, a very large proportion of the commercial establishments are almost wholly without financial resources, and are consequently very poor credit risks.

Secondly, a large percentage have invested in past years what appears to them to be a considerable sum of money in non-automatic gas appli-

ances and are loath to replace them with new automatically equipped appliances.

It is evident, of course, that gas companies can be and are of vital influence in insisting upon only the most efficiently designed and constructed appliances. This takes care of all, or nearly all, new installations or replacement installations. Unfortunately, it does not take care of the large proportion of non-automatic appliances which are being used and will continue to be used until the owner of the establishment has been convinced that he should replace his appliances. It is this particular field that presents the most difficult problem. It appears to me that the logical answer, especially in connection with coffee urns and steam tables, is to convert these appliances to automatic control by installing thermostats. This can be done only by a crew of trained men. Furthermore, it can be done only by an organization which is in a position to take care of the financial collections. Without going into details, with which I should very likely be quite unfamiliar, it would appear that in most parts of the country the gas companies themselves are the most strategically placed to handle the sale of this equipment for this particular category of customer or prospect. By converting an existing non-automatic appliance to thermostatic control, the customer is made a satisfied customer, he learns from his own experience that gas is an efficient fuel, and consequently when he is in the market for a new appliance he will be favorably disposed to a fully automatic, modern gas appliance. I do not believe the importance of this can be stressed too greatly.

# Gas Wells for the Home

## C. B. Mershon Cooks, Heats His Home and Grows Vegetables With His Well

By J. B. NEALEY
American Gas Association

LOOKING for one thing only to be disappointed by finding another is the lot of man. Seldom is the thing found of more value than that sought although there are exceptions. The history of the oil industry is full of incidents where wells were drilled in search of this "black gold" only to find water. This process was reversed the other day when a St. Louis war veteran dug a water well with a post hole digger on the bank of the Mississippi River and brought in a gas well. Driving down a pipe and capping it with an old inner tube and using the valve as an outlet, he is now cooking with this fuel and expects to heat his shack with it this winter.

Years ago, another example was when a company drilling for oil penetrated a thick bed of pure sulphur and, disgusted, abandoned the project. Today this same deposit furnishes most of the sulphur consumed in the United States. All this recalls the first use of gas in America when William Tompkins in drilling a salt well brought in gas instead. This was near Charleston, West Virginia, in 1841 and the gas was piped to the Tompkins' salt works and used in the place of coal for evaporating the brines. This first well was only a few hundred feet distant from the "burning spring" that George Washington mentioned as early as 1775.

A trip through the gas and oil fields will reveal many a house with a small gas well on the premises. Instead of utilizing the gas, the owner allows it to burn as a torch which gives forth a weird light by night and visible smoke clouds by day. Not so C. B. Mershon of Pittsburgh, Pennsylvania, assistant manager of the Industrial Department, Manufacturers Light & Heat Company.

In Mr. Mershon's backyard is a small gas well and there is considerable pressure back of the gas so that it flows readily. Not only does the Mershon family cook, heat water, and heat their home with this fuel; they do other things with it. The most novel of these is to mature a vegetable and flower garden long prior to the regular planting season. To accomplish this, a copper pipe is looped back and forth just below the surface of the ground where the seeds are to be planted. This is attached to an ordinary gas fired water heater. The water is heated to the proper temperature and then circulated through the underground coil The proper temperature is maintained continuously and automatically by a thermostat. Seeds are planted and quickly sprout under this heat treatment. Of course, they are kept under glass so that the young plants will not be nipped during the cold nights.

It is remarkable how many plants can be raised in so small a space. The hot bed is only 42 inches square and is placed just outside one of the basement windows. The bed can be worked either through the basement windows or, on warm spring days, from the outside.

During the fall and winter season, potted plants are grown which help a fellow from going crazy who has been badly bitten by the "Garden Bug."

*Hall M. Henry* (CHAIRMAN)
THE UTILITY MANAGEMENT CORPORATION
NEW YORK, N. Y.

# THE A.G.A. REFRIGERATION C

*Albert G. Schroeder,* GRAND RAPIDS GAS LIGHT COMPANY, GRAND RAPIDS, MICHIGAN
*Henry Dropp,* MILWAUKEE GAS LIGHT COMPANY, MILWAUKEE, WISCONSIN
*Paul J. Naschold,* NEW HAVEN GAS LIGHT COMPANY, NEW HAVEN, CONN.
*Clyde Potter,* SOUTHERN COUNTIES GAS COMPANY, LOS ANGELES, CALIF.
*B. H. Gardner,* THE GAS & ELECTRIC APPLIANCE COMPANY, COLUMBUS, OHIO
*B. O. Brown,* SERVEL, INC., NEW YORK, N. Y.

# ALMOST 2,000 AWARDS!

**HAVE YOU SENT IN YOUR MARCH REPORTS**

IF NOT, PLEASE FORWARD RESULTS OF THE WARM-UP DRIVE AS SOON AS POSSIBLE

**CELEBRATE GAS REFRIGERATION'S**

# COMMITTEE INVITES YOU TO A

# Big Birthday Party!

## APRIL • MAY • JUNE

WE'RE going to have a party...a *big* party...for the entire gas industry. It will celebrate the tenth year of gas refrigeration—an important birthday in the life of an industry that has shown steady growth.

Your refrigeration committee is staging this spectacular jamboree during April, May, and June, with more awards than ever before. We want *everyone* to come to the party. Your committee fully expects this to be the biggest sales drive yet and is looking for a record registration of 12,000,000 meters.

There will be two schedules of awards—one for companies, one for retail salesmen—totalling nearly 2000 in all! There will be substantial cash awards for the companies, for individual achievements, and for largest total installations.

And, of course, *birthday cakes*. There'll be twenty-four Honor Cakes—one for *every* company winner. Real, honest-to-goodness cakes—great whoppers—that will be the biggest, probably, ever seen in your city. Big enough so everybody—consumers, employees, newspaper men, prospects—can have a slice at your own company party.

This year, competition will take place in eight divisions. The grouping differs from that of 1936, with changes—including a separate division for combination companies—calculated to broaden interest, widen opportunities, and make the contest more equitable.

*Remember*—to participate, each company must register with the refrigeration committee, and those registrations should be mailed not later than April 15th. Fill out your form and send it in now. (No entrance fee.) If you haven't received forms, write to J. W. West, American Gas Association, 420 Lexington Avenue, New York City.

**Sponsored by the Refrigeration Committee of the American Gas Association and the A. G. A. E. M.**

**'S 10TH ANNIVERSARY WITH *Record Sales***

# 1937 Gas Refrigerator Objectives

By George S. Jones, Jr.

Servel, Inc.
Evansville, Ind.

IN the history of the gas refrigerator there have been four important steps.

1st—The purchase of the rights to manufacture in this country in 1926.

2nd—The development of the air cooled feature in 1933. The elimination of the water jacket and the real opening up of business nationally for all of us.

3rd—The change in design in 1935 when the cabinet and unit were designed for each other instead of applying a cabinet really designed for electric units.

4th—The present design—radically different, radically improved—carefully thought out and produced in what we firmly believe to be the world's most modern and efficient refrigerator factory.

May I say a word right here about what has been accomplished in Evansville in the way of plant management and design? Since 1933 wages have gone up with the cost of living. Materials that constitute the major portion of our refrigerator have gone up 10%. The amount earned per man has gone up 12½%. But with a product definitely improved in design, in appearance, in performance and in efficiency, the actual cost per cubic foot to you of the gas refrigerator has decreased 12½%. Surely to be able to say that and to remind you of the profit that was made at the same time is to further advance our claim of adequately accounting for our responsibility in making your refrigerator.

As to distribution, to selling. We are part of that. Our advertising continues to be the most adequate we can possibly justify. This year we again blanket the nation, beginning with the *Saturday Evening Post* and carrying three distinct appeals to three distinct income brackets. We have realized the same copy does not appeal to all classes. Our Sales Promotion plans are now completed including by far, the greatest A.G.A. campaign we have ever been a party to. You might be interested in knowing that our field personnel has tripled since 1933.

And now for your part. We have some very definite ideas on that subject; ideas developed in consultation with the executives of your companies, tried and modified, changed and improved and tested. We have talked to most of you individually and I would like to sum them up here.

First—the gas refrigerator has outgrown its swaddling clothes. It is a big industry and must be handled as such. It is no longer fair to you nor to us to simply place it on your floor as another appliance and depend on partly trained and part time men to handle it.

Second—It should be considered as one of two refrigerators made instead of one of many.

Let's take that second statement first. There are some thirty manufacturers of electric refrigerators but they all use electricity and can only be sold where electricity is available. That's their market. But what about the gas refrigerator? What is its market? Surely, every home where gas is available—and there are almost as many gas meters in this country as there are electric meters—is a prospective gas refrigerator home. Suppose all electric refrigerators had the same name plate—would you as sales executives for your gas company be content with a paltry 10% or 20% of the total sales? There are as many people interested in the gas industry in this country—in round numbers—as there are those interested in the electrical industry. You as an industry are therefore entitled to 50% of the business. Why not set that as your objective—not for 1937 perhaps but later.

It's Big News for Everybody
GREATER EFFICIENCY
MORE ECONOMICAL
GAS REFRIGERATION
Scoops The Field Again
and the 1937 Servel Electrolux Gas Refrigerator is 13% more efficient—10% more economical in operation than ever before.
Silently, without moving parts to wear out, a gas refrigerator operates for an average cost of 2 cents a day. The new 1937 models are now on display at
THE GAS COMPANY.

**Sales campaign includes popular magazine and newspaper advertising. The above is 2 column advertisement for newspapers.**

Now then, suppose we agree that we have as good a refrigerator, with as universal appeal as any other. What is the most important factor in reaching that goal? Obviously it's adequate man power—trained man power. Who is selling the electric refrigerator? Every electric utility plus thousands of dealers. Now then, isn't this a fair question? How can the gas utility in any given territory expect, of themselves and by themselves, to put as much man power in the field as does the electric utility plus the dealers. And that brings us to the first part of this distribution problem—more and better trained salesmen.

We have been asked in recent months if we were going away from utilities. Let me be as positive in this as it is possible to be. We are *not*. We must have the utility support. In a few instances, in Oklahoma where the utility is prohibited from selling, in some combination properties who do not care to sell gas appliances, in a scattered few places, we have been forced to seek other outlets. At other places the utilities themselves have requested that distributors and dealers be appointed. With the assistance of the utility from every possible angle these operations have been successful almost without exception.

Now what are the handicaps that we would like to define and if pos-

*Presented at the Eastern Regional Natural Gas Sales Council, Pittsburgh, Pa., February 4-6, 1937.*

sible get a remedy for?

First—The actual difference in man power. The remedy there is obvious although not always practical. More men working for the utility or for dealers or both.

Second—More hours per man per year.

The remedy here can be applied along several lines. There is a great need for full-time refrigeration salesmen the year round instead of taking them off entirely at certain times of the year. It is our recommendation that a minimum number of men be put on each appliance the year round with additions during peak seasons. Also remember that your dealer salesman as a rule works more hours per year on refrigeration than does your utility salesman.

Third—Better trained salesmen. The average utility executive will not allow the opportunity for training that most dealers and distributors do. They will not permit the men to attend schools and conventions for training in any one appliance. The average utility salesman in my opinion is a higher type man but the very nature of his supervision and working conditions usually results in his being a jack of all trades and refrigerators are not sold that way.

Fourth—Too often the utility that appoints dealers is influenced by politics. It is very definitely our recommendation to never place the gas refrigerator on sale with electric refrigerators. The story is different, the refrigerator is different. Usually you will find that dealer sitting calmly down until advertising and publicity has driven in a prospect and he sells what that prospect has already been sold on. Remember the sum total of advertising on the part of your competitor—that is all electric refrigerators—is such that we could never hope to equal it—to drive 50% of the prospects in already sold on gas refrigeration. We must insist on salesmen with a single purpose.

Fifth—and finally—price differential. I'm not going very far in that discussion. Suffice to say the dealer can only survive on adequate markup. If local conditions justify it, the markup should be enough to give the dealer an opportunity. If local conditions do not place us in such a favorable condition then other ways must be found, or volume inevitably must suffer. This can only be decided locally. All I ask is that when you consider your problems you also consider ours. It is entirely possible that local conditions must be subordinated to the overall picture. If we can depend on you to meet us at this point, realizing that economically unsound conditions are never permanent, then I am sure there will be no trouble in working out the answer we all want.

And so in summing up, may I repeat that 1937 Gas Refrigeration Objectives brought down to cases are:

1. Constantly improved product.
2. More and better trained selling men.
3. An increasing percentage of the replacement market. I have not touched on this. It is a tremendously interesting subject all its own. May I say this—shortly now refrigerators will be replaced by the hundreds of thousands yearly. Ours—of all—has the greatest appeal to this market, a market consisting of people who know what they want and can pay for it, people who are familiar with all the advantages of automatic refrigerators and the disadvantages of mechanical. It has been said that if we get 25% of the new business, we should get 50% of the replacement business in 1937.
4. A better understanding of each other, a clearer picture of each other's problems, a realization that ours is a partnership unlike any ever existing in industry. If this is the result of this year's work together, we not only will accomplish all objectives in 1937 but will build a foundation on which greater and greater objectives can be established and accomplished with each succeeding year until our half of the total market is a definite accomplishment.

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# The Golden Faucet Campaign

**By R. E. Williams**
Chairman A.G.A. Water Heating Committee
Binghamton Gas Works
Binghamton, N. Y.

YOUR Water Heating Committee, in a sincere desire to assist you in your water heating promotional problems, offers to you the "Golden Faucet Sales Contest." This contest grew out of the enthusiastic response to last year's successful campaign which pushed the sales of automatic gas water heaters up 55% above the previous year's record. Salesmen, sales managers and gas company executives all joined in a widespread demand for another contest. It was a remarkable tribute to the skillful planning of last year's water heating committee—and an indication of the sincerity of our desire to "get going" in the field of gas water heating.

In planning the Golden Faucet Contest your committee, composed of representatives of the Water Heater Division, Association of Gas Appliance and Equipment Manufacturers, together with gas company members of the Commercial Section of your association, spent many weeks reviewing the results of last year's campaign. Comments and suggestions from members of the sponsor organizations, and particularly from last year's contestants were carefully reviewed. Strong—and weak—points in last year's contest were thoughtfully analyzed. Your Golden Faucet Contest is the result.

The Golden Faucet Campaign consists of two separate contests, coordinated and timed, but conducted independently. In addition to the gas company contest, a dealer contest has been launched by the Water Heater Division of the Association of Gas Appliance and Equipment Manufacturers. Both activities are made possible by the sponsorship of participating water heater manufacturers—members of the Association of Gas Appliance and Equipment Manufacturers, and the Commercial Section, American Gas Association. The dealer contest will be confined to retail gas water heater dealers. Prizes will consist of valuable articles of merchandise to be awarded for outstanding sales efforts.

Several important innovations have been embodied in the Golden Faucet Contest for gas companies and their salesmen.

First, in an effort to encourage general participation, *no registration fee will be required*. Gas companies

*From a paper presented at the Eastern Natural Gas Regional Sales Conference of American Gas Association, Pittsburgh, Pa., February 4-5, 1937.*

may be entered by operating divisions, if desired, to stimulate intra-company competition, or the company may be entered as a unit.

Secondly, the contest is directed primarily toward the men on the firing line, the shock troops of your organization—your salesmen. All cash prizes involving $17,600 during the 8 months' campaign will be awarded to gas company salesmen. Each month cash prizes of $10 will be awarded to 180 salesmen within the seven size divisions (based upon the number of domestic meters served). The prizes in each size division have been allocated with respect to the anticipated number of salesmen to be registered in competition. At the end of the contest 65 grand prizes, ranging from $100 to $25 and totalling $3,200 in all, will be awarded to the salesman accumulating the highest total points for the 8 months of the contest. In addition to the cash prizes, bronze, silver and gold medals of merit will be awarded to successful salesmen.

Finally, there will be no prescribed period for intensive drives; each gas company may plan its periodic drives to meet local requirements. Gas Company awards will consist of attractive plaques of merit to be awarded for best records for the 8 months' contest period. Each participating gas company sales executive is earnestly requested to utilize the monthly cash prize award plan for salesmen to promote a continuous activity throughout the 8 months' period. To keep up the enthusiasm of the salesmen, a monthly bulletin will be published containing a report of the monthly winners and standings to date. A snappy tabloid newspaper—the "Gold Digger"—will feature stories and pictures of leading salesmen, along with methods they use to build sales.

We send a comprehensive portfolio of sales and advertising aids to help you in your campaign. This portfolio includes information about last year's successful sales plans compiled from letters written to us by winners in last year's contest. In addition to the sales plans and a list of home service helps prepared by the Home Service Department as a result of work in the field, the portfolio will include supplemental direct mail, billboard and other publicity helps. This portfolio of sales helps will be mailed to those who register in the contest, only. Send in your registration to get your copy—and you may have additional copies for your divisional sales assistants if you include their names as provided for on the registration blank.

Three direct mail pieces will be available to all gas companies. Useful as envelope stuffers to go with letters and bills or as literature to be handed out at the office or by salesmen, all three of these pieces stress the comfort, convenience, and economy of automatic gas water heating.

Supplementing these direct mail pieces, we offer a comprehensive book about hot water in the home. This little volume is one that every housewife will welcome. It calls her attention to many novel ways of using hot water to lighten her housework, and supplies helpful charts of temperatures to use for such purposes as washing woolens, rinsing dishes, or cleaning furniture. Its message does not apply specifically to any one type or brand of hot water heater, but is instead a general treatment of the usefulness, convenience, and economy of having hot water always available in abundance.

***Already upwards of 550 Gas Companies and 500 Dealers have enlisted in the 1937 Golden Faucet Campaign. The author points out that "it costs you nothing to enter,—but it may cost you plenty to stay out."***

It is attractive in appearance and full of valuable information. A gas company imprint may be included on the back cover page, for a small additional charge above the low price set for this booklet. Use it as a door-opener for your salesmen when they cold canvass. Key it in with your newspaper advertising as a free gift, obtainable at the gas office. Supply it to your Home Service Department—they will welcome it, because it was the Home Service Committee who made the booklet possible.

Other material, which will be made available at low cost, will include electrotypes for imprinting your message on your gas bills and for spot newspaper advertisements, mats of newspaper advertisements suitable for larger water heater copy, bill posters, window displays, showcards, car cards, lipstick tissue pads, and reports of comparative water heater tests made last year by the Massachusetts Institute of Technology.

All this material will be produced in huge quantities, thus making it possible for all gas companies to purchase these sales helps at a fraction of their normal cost. The work is being done by experts, and all the material may be used by any gas company, regardless of its size or location. Additional sales helps may be obtained from manufacturers of water heaters. Be sure to examine, carefully, the fund of advertising material and sales helps that your water heater manufacturer can furnish at little, if any, cost to you.

That is the essence of this year's Golden Faucet Contest. Sound, tested merchandising plans. A popular contest, with frequent contacts to maintain enthusiasm among salesmen. A complete—yet simple and effective—advertising schedule. And a thorough follow-up policy.

May I, on behalf of your Water Heating Committee, suggest that a program of replacement of old non-automatic water heating equipment be adopted by every natural gas company, to be considered an integral part of the yearly plan of promotion. Encourage your salesmen to sell automatic gas water heaters along with modern ranges, refrigerators and house heating equipment. Make it a major sales activity—and push it, vigorously. Gas companies serving manufactured or mixed gas at relatively high rates against low priced competitive fuels, are forced to fight for the gas water heating load. They, too, are faced with the problem of modernizing their customer's water heating equipment. Let us remember that the only gas load that will be safe from tomorrow's competition will be the load that is protected by modern, automatic water heating equipment.

Join in with other forward-looking gas companies in protecting your gas load. Remember it costs you nothing to enter—but it may cost you plenty to stay out.

## J. A. Dwyer Becomes District Manager

On March 1, 1937, J. A. Dwyer, manager of the Philadelphia branch of Crane Co. became district manager of all Crane branches in the Eastern territory, including all of the New England states, in addition to metropolitan New York, Eastern Pennsylvania, New Jersey, Maryland, and the District of Columbia. A total of eighteen Crane establishments thus came under the jurisdiction of Mr. Dwyer, whose headquarters will be at the company's New York branch.

H. S. Officer, manager of the Newark branch, succeeds Mr. Dwyer at Philadelphia, and J. H. Geiss moves from Hempstead, Long Island, to succeed Mr. Officer as manager at Newark.

# Situations Wanted

## *By 4 Gas Salesmen With Remarkable Qualifications*

THESE 4 American-Bosch Gas Water Heaters want an opportunity to sell more gas in *your* community. And can they do it? Say—it's the talk of the industry how these heaters have opened up tremendous new markets for gas companies.

In range of application alone, the American-Bosch line opens the door to thousands upon thousands of gas using homes where automatic hot water has previously been out of the question.

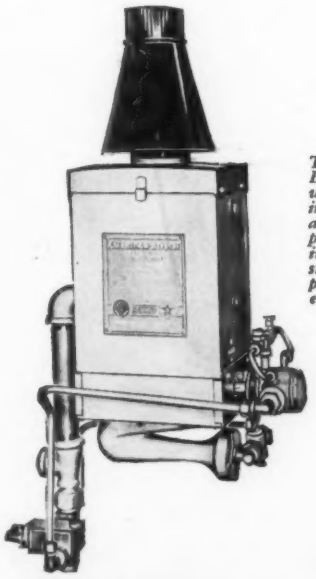
Write for complete information and literature about these 4 gas salesmen.

*The makers of American-Bosch products have always taken pride in creating, designing, building and selling products superior to those commonly in use. Built to a high standard of quality, these products are proven leaders in their fields.*

*Gas Appliance Division*

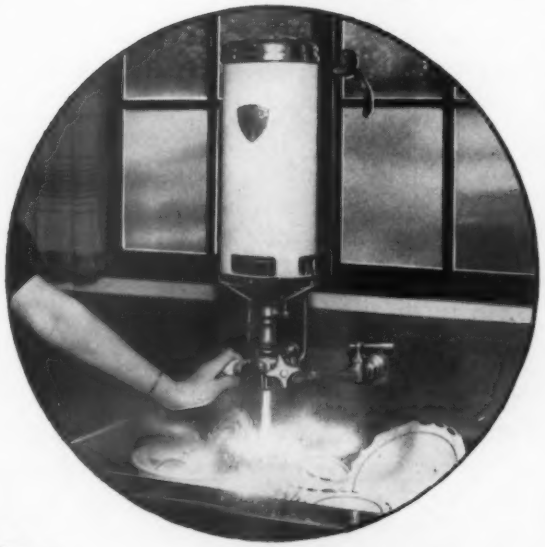
**UNITED AMERICAN BOSCH CORPORATION**

**SPRINGFIELD, MASS.** New York Boston Pittsburgh



### AMERICAN-BOSCH KONVERTO

When Model WHB 40 Konverto is installed and tank properly insulated, the result is a compact, inexpensive automatic water heater. Model WHB 75 is similar, although slightly greater in depth. Model WHB 40 consumes approximately 40 cu. ft. of manufactured gas per hour with a recovery capacity of 28 gals. per hour; Model WHB 75 consumes approximately 75 cu. ft. of manufactured gas and has a recovery capacity of 53 gals. per hour. Big water passages and large volume output make this a "man-size," fool-proof heater adequate for the largest homes.



### AMERICAN-BOSCH NO-TANK WATER HEATER

Supplies hot water instantaneously and automatically, without expensive equipment in the cellar, a tank in the kitchen, or hot water pipes. One Gas Company sold 505 No-Tank Heaters in 60 days. This heater is 23¼ inches high, 6¼ inches in diameter. Gleaming white enamel or chrome plated finish and heavy chrome plated fixtures harmonize with any modern kitchen. Installation is simple—merely attach the heater in place of the cold water faucet, and connect the gas line. Heater has hot and cold water faucets so that temperature of water can be adjusted. A second outlet to serve a bathroom or other fixture is provided at rear of heater.

### AMERICAN-BOSCH KABINETTE

A Ball-Tank type of automatic gas water heater, housed in a beautiful cabinet which can be placed conveniently in kitchen, laundry, or basement. The chrome top provides additional table height working surface. 20 gallon capacity; size 26" high, 25" wide, 25" deep; finished in white enamel with black trims.

### AMERICAN-BOSCH BALL-TANK HEATER

Note the gleaming, new sales-producing beauty of the American-Bosch Ball-Tank Water Heater—a revolution in automatic gas water heater design, made possible by the globe-shaped tank. The American-Bosch Ball-Tank is made in 3 sizes: 20 gallon capacity—height 55", diameter 26"; 32 gallon capacity—height 62", diameter 26"; and 50 gallon capacity—height 72", diameter 26".

# A Profitable Commercial Load

## MARTIN

### UNIT CONSTRUCTION

### "Variety" Bake Ovens

Bake a variety of goods at the same time with separate thermostat control of each unit. Wherever installed, Martin VARIETY ovens afford improved shop layout and enable additional units to be added as business demands.

The unit shown is standard sectional two chamber oven, 6'-6" high by 6' deep by 4'-3" wide.

**Here is big sales opportunity to replace other fuels and obsolete gas equipment.**

Single Section Variety oven with part of side removed showing unit construction. The two chambers can be operated at different temperatures simultaneously.

**Variety Ovens meet with ready acceptance among the following:—**

| | |
|---|---|
| Bakeries | Restaurants |
| Hotels | Hospitals |
| Schools | Churches |
| Clubs | Chain Stores |

*Ask for descriptive data and selling aids for salesmen.*

"Variety" Ovens make an attractive and economic installation. Ruggedly constructed on modern lines of galvannealed iron with polished stainless steel front and chromium plated fittings, if desired, insulated walls and quick acting doors.

Cake and bread can be baked at the same time. They use a circulating heat system and are more economic in gas consumption than most direct heat ovens.

A single demonstration sells them.

***MARTIN OVEN COMPANY***

**420 Lexington Ave. New York**

Four Unit Oven (32 Bun Pan) in rear of Bakery and Restaurant

**THE SYMBOL OF UNIT HEATING**

# Accelerated Loadbuilding Prospects Enthusiastically Discussed At National Commercial Sales Conference

ENTHUSIASTIC over the rising tide of commercial sales, industrial gas men look to the aggressive modernization of obsolete installations and the development of untouched markets to further promote the sales of gas and gas appliances in this field. These were the dominant notes at the National Commercial and Hotel & Restaurant Sales Conference held under the auspices of the Industrial Gas Section of the American Gas Association in cooperation with the Pennsylvania Gas Association, March 2 and 3, at the Benjamin Franklin Hotel, Philadelphia. An attendance of more than 200 men, prominent in the gas industry, both manufactured and natural, was drawn from 15 states by the pressing need of solving certain problems to more quickly and fully realize these markets. So much valuable and timely information was brought out by the many authoritative speakers and during the enthusiastic discussion following, that it immediately became one of the best sales meetings ever held on this subject.

A most interesting display of some 20 counter cooking appliances was featured. This occupied a room adjacent to the conference room and included everything from a new percolating type of coffee urn to complete short order devices.

Presiding at the Tuesday morning session was Ralph L. Manier, Chairman of the Industrial Gas Section of the American Gas Association, who gave the delegates a warm and cordial greeting. Welcoming the delegates on behalf of the Pennsylvania Gas Association, H. N. Squier, President, stated that they were most happy to meet with the Industrial Gas Section in their first joint meeting. He said in part that the symposium on commercial sales was to signalize progress made in the sale of commercial gas. "The gas industry stands today with the greatest commercial load in history, and, through the enthusiastic incentive given it by this symposium, we can see ahead a substantial increase in this load and a most successful future in this field."

The first paper was delivered by H. T. Ryan, of the Robertshaw Thermostat Company and appears elsewhere in this issue.

C. George Segeler, Engineer of Utilization for the American Gas Association, discussed "How Commercial Sales are Made—Four Case Histories." "Eighty-five different classes of commercial gas appliances," said Mr. Segeler, "have been listed by the Association in a recent service letter sent to all gas company and Individual Industrial Section members. But gas companies

RALPH L. MANIER

are not yet deriving the greatest benefit from gas sales through these outlets. Active cooperation with the manufacturers of these appliances will extend and fortify our position. We have the weapons to meet competition and it is up to us to help the manufacturers in equipment design, advertising and display, servicing, credit, utilization, and sales efforts."

A symposium "Modernizing Gas Service and Increasing the Cooking Load" was led by Frank H. Trembly, Jr., at the Philadelphia Gas Works Co., Philadelphia, Pa. He sounded a note of warning when he stated that "The progress in modernization which has been made in the field of heavy duty gas kitchen appliances must be extended to the remaining appliances. Our counter cooking appliances are for the most part insufficient, cumbersome in appearance and inadequate for the service intended. The gas industry must modernize these appliances if it is to retain the counter cooking load."

Active and enthusiastic discussion

Group in session at the National Commercial, Hotel and Restaurant Sales Conference in Philadelphia. At the speakers' table are F. J. Coughlin, R. L. Manier and H. N. Squier.

followed, in which the following participated; L. B. Crossman, of the Boston Consolidated Gas Co., Boston, Mass., P. M. Alden, of the Philadelphia Electric Co., Philadelphia, Pa., T. J. Gallagher, The Peoples Gas Light & Coke Co., Chicago, Ill., W. J. Hill, of the Detroit-Michigan Stove Company, Detroit, Michigan, C. H. French, Standard Gas Equipment Corp. of New York, J. F. Quinn. The Brooklyn Union Gas Co., Brooklyn, N. Y., C. E. Lucke, Jr, Consolidated Edison Co. of New York and J. P. Leinroth, Public Service Electric & Gas Corp., Newark, N. J.

After a most enjoyable luncheon and talk-fest among old friends and new acquaintances, the afternoon session convened with Joseph F. Quinn, Chairman of the General Commercial Committee of the Industrial Gas Section, presiding. The following papers were presented:—"A Description of the New Commercial Gas Refrigerator" by Dr. William R. Hainsworth, Vice President, Servel, Inc., New York City, and interesting slides were shown.

"Servel Electrolux Commercial Gas Refrigeration—Policy and Plans for Merchandising," by C. J. Conkey, Sales Manager, Commercial Servel Electrolux Sales Division, Servel, Inc., Evansville, Ind.

Alexander Forward, Managing Director of the American Gas Association, complimented those who got up the program. He also spoke of his admiration for the men who went out and sold commercial gas equipment—calling each sale a separate and new achievement. "The eyes of the gas industry are on you commercial men," he concluded.

A Symposium—Selling Commercial Water Heating, Experiences from the Firing Line—was led by L. E. Biemiller, Chairman of the Volume Water Heating Committee. Mr. Biemiller's paper most interestingly brought out the different commercial uses for hot water; various classifications of establishments using hot water heaters; volume of hot water usually required in each type of establishment, etc. E. A. Lawler, Public Service Electric & Gas Co., Jersey City, N. J., pointed out that apartment houses constituted a large potential market for volume water heating. While coal and oil now served this field in a large degree, the high efficiency of gas equipment today put gas in a favorable position to compete with these fuels. Incinerators for burning refuse in these same apartments offer another field for gas.

Selling commercial water heaters with a minimum gas consumption guarantee is the practice of the Scranton-Spring Brook Water Service Co., Scranton, Pa., according to M. A. Boylan who stated that they had taken 50 jobs in the past 5 years running from a few gallons up to 500 gallons. L. Ourusoff, Washington

J. F. QUINN

Gas Light Co., Washington, D. C., spoke of a specially designed immersion type of water heater which is being tried out in his territory. G. George Segeler, American Gas Association, stated that more extended use could be profitably made of the water heater tests conducted by Prof. Wilkes of the Massachusetts Institute of Technology and available through the American Gas Association.

Others who entered the discussion were T. J. Gallagher, the Peoples Gas Light & Coke Co., Chicago, Ill., and C. E. Bartlett, of the Rudd Manufacturing Co., Philadelphia, Pa.

Presiding at the Symposium on Space Heating was C. E. Lucke, Jr., Chairman of the Commercial Cooking and Baking Committee. He first introduced Harold Massey, American Gas Products Corp., New York City, whose paper "This Will Be a Gas Water Heater Year," was well received. The following paper "Selling Gas Appliances for Brewing the National Beverage," read by Robert Arnold, of the Silex Co., Hartford, Conn., described the advantages of coffee making with small glass brewers, a method that is being widely accepted in all classes of restaurants and hotels.

The symposium—Selling Commercial Space Heating, Experiences from the Firing Line was led by H. P. Morehouse, Public Service Electric & Gas Co., Newark, N. J. To graphically present the position held by commercial space heating, he said that the volume of this type of heating amounted to 20% of all space heating. He introduced G. W. Schock, The Philadelphia Gas Works Co., Philadelphia, Pa., who told the assembled delegates that there were 20,000 gas steam radiators in his territory. This business was largely acquired through a rental plan inaugurated 5 years ago.

Venting was a subject of much interest, and R. L. Manier, Syracuse Lighting Co., Inc., Syracuse, N. Y., preferred the circulating type of heater because of heavy condensation with other types.

Unvented heaters were also barred by the Washington Gas Light Co., according to T. M. Offutt who stated that insulated copper ducts were used for flues with considerable success, and that his company installed unit heaters in the ducts of summer air conditioning systems for winter heat-

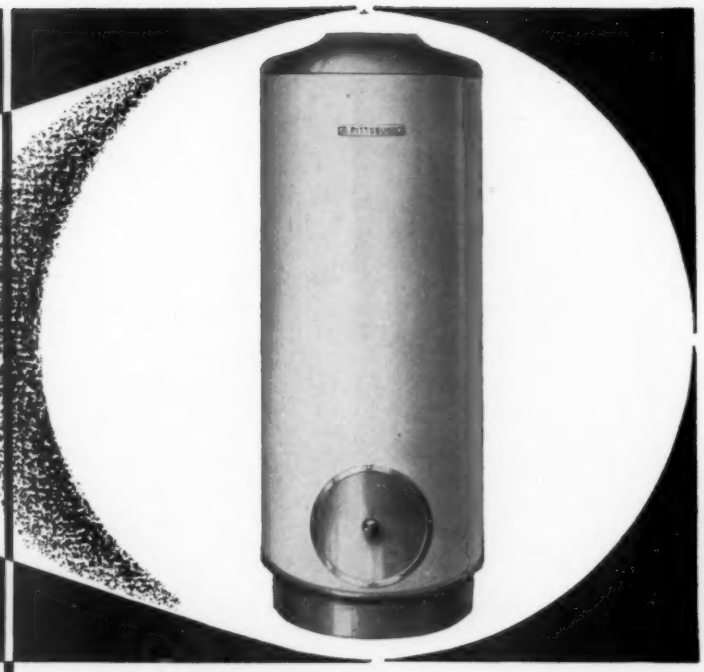
(*Continued on page 72*)

**Display of Commercial Appliances including Percolating Coffee Urn; Combination bake oven, open grate, griddle and broiler; Deep fat Fryers; Automatic Toaster, Grills, Ovens, etc.**

In the

# SPOTLIGHT

## Pittsburg's Streamline



Pittsburg produces a complete line of Automatic Gas Water Heaters for every income market. Each model, from the beautiful Streamlined series to the popular price leaders, has high efficiency, long life features and each one carries a substantial profit for the trade. The formed metal parts of all Pittsburg Storage heaters are Bonderized with Pittsburg's exclusive rust-resisting process.

AIRTROL ACTION

**An Exclusive Pittsburg Feature**

**THE AIRTROL**

It automatically shuts off all incoming air when burner goes out, and opens to admit air when the burner lights. Result — the water keeps hot longer.

**Pittsburg's Popular M-1**

This fully automatic gas storage water heater is a fast recovery, heavily insulated water heater at an attractive price. Handsomely finished ivory enamel. Convince yourself. Send for one to test.

**THE PITTSBURG WATER HEATER CORPORATION**

**PITTSBURGH · PENNSYLVANIA**

# Market Research Possibilities

by
R. F. Elder

IN scanning the history of the gas industry, one is struck by the idea that it must have the cat's traditional nine lives. Originally developed to serve the lighting field, it has lost this almost completely to electricity. While losing this load, it found a dominant niche in the cooking field, and to a lesser extent in water-heating. Today it is facing stern competition along these fronts, not only from electricity but from the rejuvenated coal and oil industries. To some extent it is meeting this competition by moving into housheating and industrial fuel. More significantly, however, it shows a disposition to refuse to give further ground in the fields it has staked out for itself. By a vigorous program of research it has fortified its position with modern and efficient gas equipment. It is refusing to retreat, and even shows a tendency to counter-attack. Gas refrigeration and air conditioning and commercial flood-lighting furnish instances of a new and aggressive spirit.

Technical research in the utilization of gas and in the development of improved appliances can reach its full fruition in net profits only if it is combined with equally sound and equally thorough research in marketing. It is true enough that "Goods well made are half-sold", but we must not forget the remaining half of the selling job.

The first step in attacking a market is to make a comprehensive map of it. What are the fronts along which gas is competing, and what is our position on each of these fronts? Only as we see the whole picture can we intelligently formulate our sales plans.

Gas is correctly regarded as the dominant fuel for domestic cooking. This is a tremendous field, although it has been shrinking in recent years due to the tendency of people to patronize bakeries and restaurants. We must measure this trend and figure out means to get the business which has shifted.

This means an increased amount of effort in the commercial field. The industry's recognition of this is clearly revealed in the setting up of special departments to handle this phase of the general sales problem. Surprisingly, the Real Property Inventory recently made in 64 cities shows that only 69.4% of urban homes cook with gas. Evidently the saturation point has not been reached. How far can we get gas into homes not now using it for cooking? The practices of "eating out" and using bakery and delicatessen products exist mainly in the middle and upper income groups. It is in these groups that gas enjoys full dominance, and the loss of the cooking load which results from these changes in living habits falls most heavily on gas. When we look at the Real Property Inventory figures we find that oil and coal are used far more extensively than gas for cooking in the lower income groups. These fuels, on the other hand, offer no serious competition in the upper income brackets. It is here that competition from electricity is being felt. Prima facie this little excursion into market research indicates a possible untapped market for gas ranges. Is it worth going after? The main question, of course, deals with the ability of people in the lower income brackets to buy gas ranges and pay the operating costs involved in cooking with gas. Currently, the Bureau of Labor Statistics has under way a study of consumer incomes and purchases which should shed a good deal of factual light on this problem. Another angle here is the fact, disclosed by the Census of Population, that most of the people in the lower income brackets rent, rather than own their homes. We know that landlords usually furnish ranges. What about the rental possibilities of living quarters equipped with gas as compared with those not so equipped? A little field work brings an answer and shows us whether or not we have a sales story.

Studying a different angle of the whole problem, a recent field study with which I am familiar disclosed that in a certain town not far away—and probably a typical town—half the gas ranges in use were over ten years old, and more than a third of them were over fifteen years old. When we contemplate the efficiency of the new gas ranges and of ranges using competitive fuels, we realize that our present load is to a large extent vulnerable to competition. It becomes obvious that we must get these old ranges out and new ones in. But this brings up a new problem. If we replace old ranges with new ones which are 30% more efficient, a decided drop in the gas cooking load is going to result. How is this drop in load to be replaced? The intelligent analysis of all the facts we can cull from all sources will help us to arrive at a sound answer.

The principal argument for an organized, continuous market research activity is that it brings significant facts to light more promptly and in more definite form.

Market research poses problems which keep us from going ahead with unsound sales plans. For instance, a little investigation in the field discloses that only in the upper income brackets is the kitchen customarily heated from the central heating system. In the lower brackets the range must keep the kitchen warm. Now one of the principal arguments for the new gas ranges is that they are insulated, and that the fuel is used only for cooking, no for heating the atmosphere. Any plan for putting modern gas ranges into these low income homes must take cognizance of this factor. Plunging in without prior consideration of the facts can easily lead to trouble in getting sales, or worse, to dissatisfied customers.

One of the things we have learned about marketing in the last decade is that the most efficient selling is "selective selling". The salesman has many activities. He must scout around looking for prospects. He must keep in touch with present customers to see that they are satisfied. He must follow up and adjust complaints. But the most positive way in which he makes money for the company is through the time he spends with red-hot prospects, who are able to buy, and are currently in the market. How can we increase the proportion of the salesman's time spent with these prospects? Is there any way in which we can pre-select the good prospects? I would point out here that in a competitive race

*Presented at the Eleventh Annual Business Conference of the New England Gas Association, Boston, Mass., Feb. 12, 1937.*

the fellow who begins with the best prospects first and then works down is bound to come out far ahead of the fellow who simply takes them as they come. I don't think anyone today would advocate sending out a salesman with a copy of the city directory for a prospect list. Whatever we do beyond this is essentially a selective process. Do we do the selecting on as sound, factual, and scientific a basis as possible? Modern market research, by a combination of background statistical material and painstaking and detailed field investigation, can weed out the "impossibles" and the "improbables," letting the salesman concentrate on the job of selling the good prospects. It can go beyond this. It can determine what kinds of people are the logical buyers for each type of appliance, and what selling appeals will influence them most strongly.

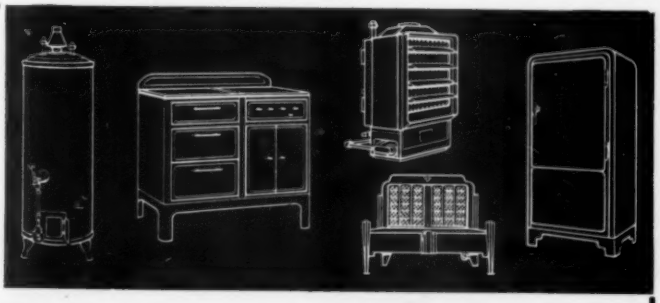
The scientific planning of marketing strategy requires a detailed knowledge of competition. This means not merely how much business competitors are doing, but where and why they are getting it. The total penetration of the domestic cooking market by the electric range is not serious; but if you examine the situation in that group of homes where the family income is over $5,000, and if you remember that new things always seep down the income scale from top to bottom, the problem becomes more serious.

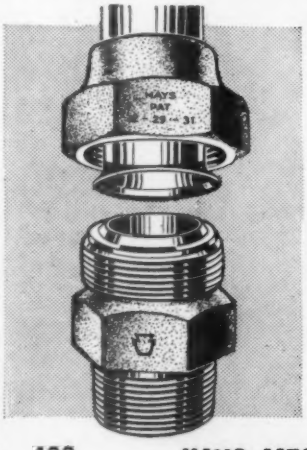
Then what about future sales possibilities? Customer attitudes almost always have an interesting story to tell if we can ferret it out. Do you know how the people now cooking with coal or oil feel about the relative merits of gas and electricity? Do you know how many owners of gas ranges who are not yet in the market have made up their minds to buy electric ranges? Information of this sort is particularly helpful, because it comes far enough in advance of a sale so that something can be done about it. And in doing something about it we need to know the "why."

We tend to stress the virtues of our own product, concentrating our attention on the points where the other fellow is weakest. But suppose Mrs. Customer doesn't attach any importance to our pet selling arguments, and is vitally interested in some other points? I believe more sales have been lost through assuming that the customer is interested in the things we think she ought to be interested in than for any other single reason. A really intelligent use of market research will yield the facts about what customers are interested in. With the facts in hand, we can then design, not only the right product, but the most effective sales approach. The combination of these two factors gives us what we may call "streamline selling." I know of no more effective way of meeting and beating competition,—and in this statement I am by no means forgetting the all too popular belief that the surest way to get ahead of a competitor is to cut your price well below his. But I want to emphasize again that this kind of selling rests squarely on an intimate knowledge of a whole lot of market facts.

The final point I want to make is that a company which is permeated with the idea of market research,—with an eagerness and a respect for facts,—almost invariably finds that its sales organization is keener and more efficient, and in particular less subject to those lapses in morale which are all too common in sales work. As I analyze the situation, the things which have the worst effect on sales morale are uncertainty of objectives, lack of definite guidance, unwarranted fear of competition, and inability to measure progress. These hazards are all directly traceable to a lack of facts. It is not the obstacles we can see clearly which deter us; it is the vast formless obstacles printed by our imaginations. Arm your salesman with all the scientifically verified facts you can obtain which are pertinent to their problems and you will find their enthusiasm and efficiency both greatly stimulated. If you can go a step further and teach them how to apply the fact-finding and fact-using procedure to their individual sales situations, you will get the maximum in results from the market research attitude. This might not prove the most profitable way to sell all commodities, but the importance to the consumer—whether domestic, commercial, or industrial—of fuel and fuel burning equipment is so great that the engineering approach is bound to be the most effective in the long run. And the best summation of the entire situation is the statement that the use of market research is essentially the application of engineering methods to the sales job.


**Hook Them Up This Modern Way**





**Use Double Seals for Economy and Tighter Connections**

**Copper pipe is neat and flexible—Hays Double Seals make strong gas tight connections. Together they make a modern team worthy of the finest gas appliances. Note how the 2-faced pipe flare (45° + 90°) makes up on the 2-faced machined seat of the fitting. It's copper to copper with no sealing agent required. Write for catalog.**

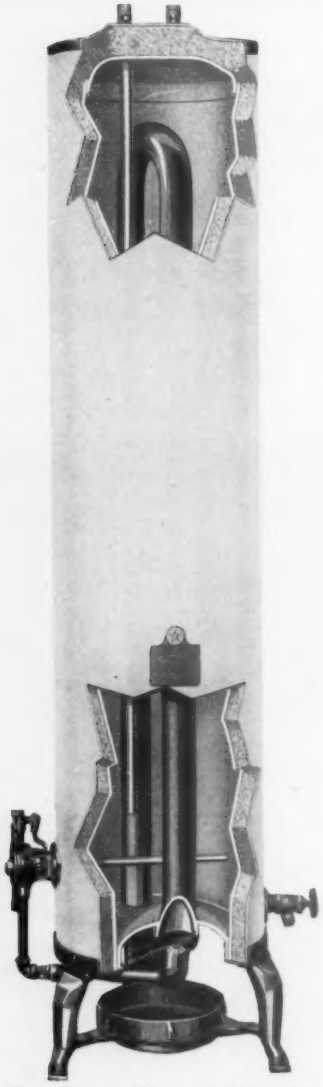
400 STYLES & SIZES

HAYS MFG CO. ERIE, PENNA.

*Specify* HAYS DOUBLE SEALS

# 20% TO 25% SATURATION

"One out of every four have it"



*Cut-Away View of H-B "U" Tube Low Consumption Heater*

The small burner at base of the tube keeps a steady flow of heat constantly in contact with the water. Thermostat controls quantity of gas and temperature.

WITH

## HANDLEY-BROWN

**"U-Tube"**

**Automatic Storage**

## WATER HEATERS

Numerous Gas Companies specializing on H-B Heaters have this record—and what a lot of M. Cu. ft. per year!

Handley-Brown low cost, dependable service makes satisfied users who tell their friends. This builds volume sales year after year.

In 10 years 75% of all Handley-Brown sales have been the low cost 30-gallon size made especially for the volume market. With Handley-Brown's high efficiency this size provides ample hot water for these people's present needs and the capacity can easily be increased over 100% as the customer's hot water demands grow.

H-B "U" tube heaters available in three sizes. Galvanized or Everdur tanks.

No. 30— 90 gallons per day capacity
No. 50—145 gallons per day capacity
No. 45—500 gallons per day capacity

Mirro-Shell Conversion Heaters
M-S 30-4A for 12" x 60" tanks— 85 gallons per day capacity
M-S 40-5A for 14" x 60" tanks—120 gallons per day capacity
M-S 30-8A for 12" x 60" tanks—160 gallons per day capacity

SPECIALIZE ON H-B HIGH EFFICIENCY HEATERS AND WATCH YOUR WATER HEATER SATURATION GROW

For prices, terms, data, etc.

WRITE

**HANDLEY-BROWN HEATER CO.**

JACKSON, MICHIGAN

PIONEERS AND DEVELOPERS OF THE LOW-INPUT GAS WATER HEATER

# Gas Company Appliance Testing from the Service Viewpoint*

By

**H. W. Geyer**

Southern Counties Gas Company
of California

THE manufacture, sale and use of appliances are closely related. In this relationship the problem of field service after installation is one which deserves careful study. Service work should not demand an amount of time and expense disproportionate to its relative importance. An appliance laboratory can be of material assistance in anticipating and solving field service problems.

Testing of gas appliances by gas companies is undergoing a revival at present. About ten years ago most companies tested appliances before accepting them for sale. Then the A.G.A. Laboratory was created to bring about a more orderly development and to encourage higher standards. The operation of gas company appliance laboratories was generally curtailed and many were abandoned. In recent years the rapid development of appliances has brought with it many problems which need careful analysis from the viewpoint of local conditions. This has led to an increase in testing laboratory activities by individual companies. Such work supplements but does not duplicate or replace A.G.A. Laboratory tests.

The laboratory seal of approval of the A.G.A. Testing Laboratory indicates compliance with the minimum specifications for safety and efficiency. It is not an indication of the quality of the merchandise. In the promotion of new business, gas companies have felt the need for merchandising the best appliances available, not those merely coming up to minimum standards.

One of the most important tasks of company laboratories is the examination of new appliances in the light of field experience with previous models. Relative values of competitive models can be established which may then be used to determine the choice of those revealing the most favorable features. With company support of dealer sales steadily growing, it becomes increasingly important to encourage the promotion of appliances which require a minimum of adjustment.

## Aids Sales and Home Service Divisions

Another object of laboratory tests is to obtain information which can be furnished to the sales and home service divisions. They can be very quickly acquainted with new features from sales, service and users' angles. Furthermore, the laboratory can offer considerable assistance to gas appliance manufacturers in suggesting revisions or improvements in design or construction. The actual features to be examined and tested are numerous. Some of those more generally applicable will be discussed in this paper.

A study should be made of the ease of operation, turning burner handles, opening doors and drawers, working levers, the need for printed instructions, and, particularly in the case of ranges, the ease of keeping them clean.

In general, all adjustable features should be readily accessible and should not require unusual tools such as special angle wrenches, socket wrenches, etc. In some cases where such special tools are necessary they are furnished by the manufacturer with each appliance. Even this is undesirable as such special tools are sometimes lost or not available when needed. Standard tools only should be sufficient to make routine adjustments.

The number of joints made with metallic tubing should be kept at a minimum. Such tubing should be securely braced and fastened to reduce the chance of leakage.

Surface temperatures should be measured to insure that exposed parts with which a person may come in contact will not become excessively hot.

The operating instructions furnished with appliances should be examined to see whether they are adequate or whether disregarding them is likely to cause faulty operation or possible damage. The sale of appliances whose successful operation depends upon the careful execution of lengthy instructions should be avoided. Service experience shows that people generally will disregard long instructions. The correct operation of an appliance should be as evident as possible without additional printed instructions. This is particularly true of installations in rental properties where persons frequently move in and out.

## All Features Tested

The circulation of warm air and the disposal of products of combustion in the case of unvented appliances should receive attention. Sometimes it will be found that a certain appliance will show a tendency to discolor the wall or ceiling. The use of commercial smoke bombs has proved valuable in determining the circulation of heated air and the operation of vent deflectors on different appliances.

Some appliances may be so constructed or have operating characteristics which require that their maximum gas input be held within very narrow limits. The need for individual pressure regulators can be investigated in the laboratory and proper installation instructions issued.

Electrical controls and attachments, if used, should be readily detachable as a unit. In case a part replacement must be made in the field, it will then be unnecessary to break electrical connections, and the work of making such replacements can be done by the regular gas service man.

One important item on gas ranges is the determination of their overall

* *Presented at the Spring Technical Conference, Pacific Coast Gas Association, Los Angeles, California, March 18-19, 1937.*

depth, a dimension which has not yet been standardized. On fully automatic ranges, for example, the overall depth often exceeds 30 inches. It may be necessary to dismount the automatic controls to get the range through doors of average width. This involves remounting after installation and careful testing before leaving the job. The laboratory can determine whether ranges of unusual depth must have vital operating parts dismounted or whether the mere removal of vent boxes, door handles, etc., will reduce the width sufficiently.

The manifold piping connection to a range should extend out far enough to permit holding it with a wrench when making the connection. If it does not, the full torque may be applied to the range manifold carrying the burner cocks. Some of these manifolds are made of cast iron and may break when subjected to this strain. In others, sufficient movement may take place to cause rubbing of valve handles and the thermostat dial on the enamel front plate.

### Convenience of Adjustments

There is a pronounced tendency to build in appliances, with cabinets mounted on both sides, and sometimes above. It becomes important to determine whether all service adjustments can be made from the front or not. Should this not be possible, it may be necessary not only to disconnect the appliance, but to remove adjacent cabinets in the kitchen, involving considerable disturbance to the household, and consuming a great deal of time.

The possibility of injury to the user should be investigated. There should be no sharp enameled or metallic edges with which the user's hands or clothes may come in contact during normal usage. This applies particularly to accessories, such as grates, broiler racks, as well as parts which must be removed for cleaning.

Service drawers and broilers should be examined to see if they are just as easy to operate when the range is hot as when it is cold. It is often found that broiler drawers operate easily when cold but stick or become noisy when the range is in use.

### Thermostats and Valves

The location of the thermostat bulb in the oven compartment plays an important part. Some range ovens show a faster response to temperature changes than others. This may be caused by improperly locating the control bulb. The manufacturer may be assisted in improving this situation with the help of the laboratory. The service men can also be instructed how much time to take in calibrating the oven controls in such ranges as to insure correct setting during the first trial.

The operation of valves, particularly those above separate broilers and therefore exposed to more heat than those used on previous ranges using low broilers, is very important. The temperature of burner handles above high broilers and the oven should be determined to detect possible heat leakage. Sometime it will be found that excessive heat leakage develops due to warping of doors when heated.

Where oven or broiler doors are kept closed by means of latches, it may happen that such latches may not maintain satisfactory closure on heating. Ways and means can be developed in the laboratory to assist in overcoming such defects, and the findings communicated to the manufacturer as well as to service men.

### Pilots and Controls

The location of pilots in broiler compartments and other enclosed combustion chambers must be examined and the size of the pilots determined by several different tests to insure that such pilots will be as stable as possible with a minimum gas consumption.

The possibility of enamel chippage due to impact of drawers or drawer doors on the frame of the range must be investigated. Sometimes such enamel damage may be avoided only if the owner is unusually careful. Such construction could be improved by better design.

Controls, accessories, and adjustments in general are pretty well concealed on most modern appliances. The laboratory examination will determine approximately the length of a service man's time which may be required to make certain adjustments or part replacements. There is a considerable difference in the ease of installing and adjusting competing appliances.

The study of service work should involve not only a consideration of the manual work, time, and tools involved, but should also include underlying causes and trends. Unnecessary service requests may result from lack of information given to the buyer. The laboratory can perform a valuable function by making available to the sales and home service divisions of the gas company detailed information which should be imparted to the buyer when the sale is made. In the case of ranges, this involves the explanation of the proper use of oven controls, cooking clocks, and operation of safety pilot valves. In the case of the oven safety pilot valves, a number of service requests were made by the users whose ranges operated correctly but whose operation they did not understand. On the gas refrigerators the lighting of the burner and the adjustment of the automatic defrosting thermostat should be carefully explained, as well as numerous other details regarding the use of the box, such as arrangement of foods, freezing of desserts, and many other items which can be explained by the home service girls.

### Space Heaters

Portable space heaters of approximately the same rating have dimensions which vary within wide limits. For a given output, the heater with the smaller dimensions will naturally operate at higher surface temperatures. The laboratory can determine whether such temperatures are likely to be high enough to become objectionable.

### Performance in Excess of Minimum Requirement

The A.G.A. Approval Requirements specify a minimum speed of performance. Some appliances greatly exceed these minimum specifications. In localities where very keen competition prevails, it is to the advantage of the gas appliance merchandising agencies to support appliances giving the best possible performance. Laboratory tests will determine those appliances best able to meet such competition. Giving sales support to appliances having the best performance characteristics will promote consumer satisfaction and reduce the number of service requests.

### Simplicity the Theme

We are now experiencing a period in the development of gas appliances featuring the rapid modification of controls and automatic features, as well as attachments which are popularly referred to as "gadgets". The next step in the progress of appliance design is that of simplifying construction and adjustments so that the sale and satisfactory operation of an appliance become much more important than the service which it requires. In attaining this objective, the company laboratory can be of material help.

# ROPER *Gas Ranges*

## —styled for Today's Modern Kitchen

## —priced to Fit Every Need . . .

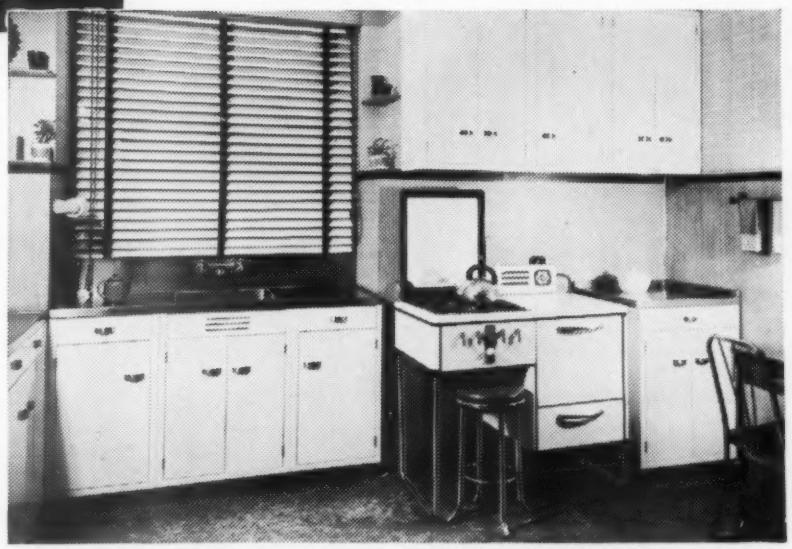
Today the trend is toward Kitchen Modernization. And in that modernization program, the gas range is the Key Unit. Again Roper Gas Ranges set the pace. The new models for 1937 are years ahead —in styling, in features, in performance.

***The "Orlando"***

"America's Finest Gas Range." That reputation has been earned by 52 years devoted to the manufacture of only quality gas ranges.

The new Roper for 1937 has all these features:

- **Automatic "Insta-Flame" Lighter**
- **Economical Giant High-Speed Burner**
- **"Multi-Flame" Burners with Simmers**
- **"Low Temperature" Oven Burner**
- **One-piece "Air-Stream" Cooking Top**
- **Permanent "Lifetime" Cooking Chart**
- **Roll-Out Broiler with Astogril**



*The "Ambassador" Model shown in above model kitchen*

ROPER offers you an excellent selection of smart, distinctive gas ranges—models for every type of kitchen—models that will meet the purse of every buyer. There are two new moderately-priced ranges, two new DeLuxe extra-capacity ranges, and many in-between—the most complete group of gas ranges ever offered by Roper.

*Gas is cheaper, faster, better*

Complete Advertising and Sales Promotion Helps and Service yours for the asking . . . Let us show you

*Tie in with the ROPER National Advertising Program*

**ROPER RANGES ARE IDEAL FOR USE WITH ANY TYPE OF GAS, INCLUDING BOTTLED GAS**

## GEO. D. ROPER CORP.

**GENERAL OFFICES AND PLANT: ROCKFORD, ILL.**

**WAREHOUSES:**

San Francisco, Los Angeles, Dallas, Kansas City, Chicago, Atlanta, Cleveland, Newark, Philadelphia

# Heating Equipment Sales Stimulated By Employes

By

**S. D. Forward**

Director of Sales Promotion
Equitable Gas Company
Pittsburgh, Pa.

EMPLOYES of the Equitable Gas Company and those of other subsidiaries making up the Philadelphia Company, Pittsburgh, Pa., have for several years become increasingly helpful to sales forces in selling heating equipment.

Ever since the bottom point of the depression, March 1933, when employes of these companies stepped out and sold over 3300 radiant heaters, the importance of stimulating the sale of heating equipment has been kept before the attention of the employe personnel.

In the Fall of 1936 a prospect campaign was staged which was the most successful from a load building standpoint of any previous similar campaign, yet the publicity methods used in securing the results obtained were so simple in character that they cannot be explained in any other way than to give a little background as to what problems have been confronting this gas company and what steps have been taken to apply remedies.

WEATHER
Manufactured to order when you have automatic gas heat.

GAS HEATING NEWS

CAMPAIGN FINAL — 1936

Vol. 2 Gas Heating Department No. 4

GAS APPLIANCE PROSPECT CAMPAIGN SETS NEW RECORD

Because employes turned in over 50% more gas heating prospects in the 1936 campaign than they did in the campaign a year ago, house heating salesmen were enabled to secure more than twice as much new gas business.

A total of 1,673 prospects were submitted during the period from September 15th to November 15th from which 577 sales of gas appliances resulted. Included in this total were 99 conversion burner and 391 circulating heater sales. This is a class of business that is most worth while and employes are to be commended for such valuable assistance.

The estimated value of the new gas business obtained as the result of prospect sales is placed at $30,500. Corresponding figure of a year ago was $14,190. The active promotion and sale of circulating heaters has been largely responsible for the improvement indicated.

RESIDENTAL HEATING DRIVE SHOWS PROGRESS

1936 Estimated Annual Load Secured...473,000,000 cu. ft.
Estimated Annual Revenue ... $215,000.00

| Units | Equip. Bogey | Sales to Date |
|---|---|---|
| Conversion Burners | 700 | 676 |
| Boilers | 125 | 66 |
| Furnaces | 75 | 148 |
| Winter Air Conditioning | 100 | 52 |
| Circulating Heaters | 2500 | 2537 |
| Unit Heaters | 200 | 166 |
| Total Units Sold — 3645 | | |

Circulating Heater Bogey Surpassed

Salesmen of the gas heating department have been successful in adding a very large number of major heating appliances to the lines. One bogey which was considered by many to be particularly ambitious when taking into account the present force of salesmen was not only reached but surpassed. The bogey called for the sale of 2,500 circulating heaters. As of December 1st, this figure stood at 2,537. When to this figure the sale of 266 boilers and furnaces and 676 conversion burners are added,

**Front page of "Gas Heating News", a four page bulletin 7½x8½ issued for employes at intervals during the gas heating campaign. This news sheet included "pep" talks, illustrations and sales records to date as issued.**

### Cause of Declining Revenue

In common with many other natural gas companies, it had been noted back in 1932 that for that year and several preceding years, the volume of residential revenues had been steadily shrinking and it became apparent that action should be taken along the broadest lines possible in order to arrest these losses. Ten years ago an extraordinarily large number of customers depended upon gas principally through the use of space heaters, but also in furnaces of every type and description for heating their homes. At about that time customers began to decide that there were other competitive forms of heating which brought a greater degree of comfort, and at smaller cost, with a consequent effect that the heating load began to slip and even in the boom years of 1928 and 1929 there was no stopping of the downward trend.

A House Heating Sales Activity was started during the year 1926 and for the next seven years did a considerable volume of business, but in spite of this, the load dropped off faster than it could be added without greatly expanding house heating activities. This fact stood out very prominently at the close of 1932. In fact, it stood out so strongly that it was decided to launch a major sales drive regardless of business conditions.

### Start of Recovery Drive

The first step taken was to start an all-employe dealer campaign on the sale of radiant heaters and an employe prospect campaign on the sale of all other types of gas equipment during March 1933. The company personnel was organized along army lines and the initial drive produced 3370 radiant heater sales and an unprecedented volume of heating equipment sales for that time of year.

That same fall, the three gas companies serving the Pittsburgh area

staged radiant heater campaigns with the result that the three companies sold over 15,000 radiant heaters. The Equitable Gas Company at that time also staged another prospect campaign for gas heating equipment.

In the fall of 1934 and again in the fall of 1935 all three gas companies of the Pittsburgh area ran radiant heater campaigns with each of these drives somewhat less successful than the one preceding, but with important results accomplished each time.

### Broad Publicity Program

During each of these campaigns a large amount of publicity was used, both to stimulate employe and dealer interest and also to arouse public demand. Employes were informed of all details pertaining to the campaign in meetings of the various departments, through the use of frequent bulletin board posters, and more especially, by the use of a campaign mailing piece consisting of a prospectus which completely outlined all the features of the campaign including contests between company departments, special prizes to be offered, amounts of commission, etc. The prospectus also gave reasons why employes should be willing to volunteer their cooperation and support in winning back the heating load lost. In addition the mailing piece contained descriptive literature on heaters and equipment and some order forms.

Then, as the campaign progressed, weekly bulletins were issued listing the names of all those who had submitted prospects or actually sold heaters. The final bulletin of the campaign gave full credit to those who had taken more important parts in bringing about the success of the drive.

All of this is given not in that it was exceptional at all, when compared to what steps other companies have taken, but merely to explain how the 1936 results were obtained with so little actual promotion.

### Types of Heaters Analyzed

At the time the very first campaign activity was staged, back in 1933, there was considerable question as to whether the sale of room heaters in wholesale numbers was the final answer in attempting to arrest declining revenues. It was this very form of heating which, through the loss of public favor, had been one of the major causes for the decline. Plainly, some heating device needed to be found, sold and installed which would take the place of the ordinary space heater, give good heating service and at a price customers were willing to pay. Also, since losses had been felt from the throwing out of such as the gas pipe burner conversion burners, old style gas designed equipment, etc., activities to profoundly increase the sale of modern, highly efficient conversion burners, boilers and furnaces needed to be started.

The circulating heater appeared to be the logical choice as a successor to the discredited ordinary space heater but there was, at first, a question as to whether public acceptance for this type of heating could be gained without an extraordinary degree of preliminary missionary work. However, when initial attempts were made to sell this class of heating through direct efforts of salesmen in 1935, it was found that there existed a quite ready market. About 800 units were sold by a comparatively small group of salesmen in that year and in 1936, with a larger group of salesmen, over 2500 sales were secured.

***During a two months' period 1673 prospects were submitted and nearly 35% of these were converted into sales.—Ed.***

Meanwhile, of course, the groups of salesmen selling conversion burners, boilers and furnaces were considerably enlarged so that all types of gas load produced through heating equipment would be developed.

### Employe Cooperation Effective

And so, with this much for background, what was done in 1936 is mentioned. It had been observed that in every campaign, including even the first one, the load building results secured as the result of prospects submitted by employes were more important than those obtained through the direct sale of radiant heaters. As the problems involved became more thoroughly understood by employes, the quantity and quality of prospects submitted continued to improve. Thus it was decided not to hold an employe radiant heater campaign during the fall of 1936, but to center attention on an employe prospect campaign.

One feature of the 1935 all-employe drive had been the publication of a little news sheet entitled "Gas Heating News." This sheet was issued monthly and gave little news items on what important new installations were being made, individual items on salesmen, information on equipment carried and some praise for those employes who were successfully cooperating. The initial issues were mimeographed but in 1936 it was decided to print them. The first 4-page printed issue of "Gas Heating News" was distributed to employes at the start of September with the main story given over to the announcement of special commissions, prizes and bonuses in connection with prospects submitted on all types of gas heating equipment. The special prospect commissions paid were only slightly in excess of the usual amounts. Bonus payments were offered according to the following schedule:

| *Equipment* | | *Bonus* |
|---|---|---|
| Circulating Heaters | —5 sales | $5.00 |
| Conversion Burners | —3 sales | 5.00 |
| Boilers or Furnaces | —2 sales | 5.00 |
| Unit Heaters | —3 sales | 3.00 |
| Gas Steam Radiators | —3 sales | 3.00 |
| Water Heaters | —2 sales | 2.00 |
| Radiant Heaters | —3 sales | 1.00 |
| Ranges | —2 sales | 1.00 |

The prize feature was that cash prizes totaling $50.00 would be paid to the five employes, other than those on the commission payroll of the merchandising subsidiary company, who succeeded in securing the largest amount of new gas business as a result of prospect sales. Bulletin board posters were then issued, also setting forth these special prospect commission payments, bonus payments and cash prizes.

### House Organ Stimulates

Copies of "Gas Heating News" were sent to about one-half of the employes of the company—all those who could be reached through the company mailing department without addressing employes individually. This news sheet formed the principal publicity given to the prospect campaign in the 1936 prospect drive. To gain a complete coverage of employes, most of the subject matter in the news sheet was carried in "Public Service," a magazine issued monthly for employes of the Philadelphia Company and its subsidiaries.

Some meetings of employe groups were held, although only a fraction of the total number was reached last fall as compared with previous years.

It was found that sufficient ground work had been laid in the previous campaigns that employes came to a ready assistance simply by getting the features of the campaign

*(Continued on page 58)*

# New Equipment

Regulator Testing Machine

### Service Regulator Testing Machine

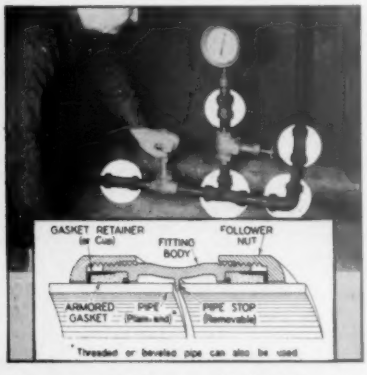
When repairs to service regulators of either a major or minor nature are required, many companies prefer to remove the regulator from service for a general reconditioning in the service shop. To provide a simple and convenient method for testing regulators of this type, both as received and after repairs have been made, the Pittsburgh Equitable Meter Company has developed the EMCO Testing Machine. It has numerous features which permit quick, effective testing and adjusting following a recommended test procedure.

This unit is made to accommodate regulator sizes from 3/4" to 1-1/2" inclusive by merely changing adaptors and guides. Either air or gas can be used for making the tests. All the necessary gauges for indicating inlet and outlet pressures are included. The mechanical construction is such that the regulator can be quickly placed in position, clamped securely, tested, and quickly removed. A simple test method may be employed using calibrated orifices to obtain two test flow rates. If more extensive tests are desired, an EMCO Indicating Flow Meter can be installed in the outlet line to read all flow rates.

The test unit is compact yet exceptionally rugged to withstand heavy duty service. It can be readily installed by bolting to a convenient bench and connecting air or gas line to the inlet connection.

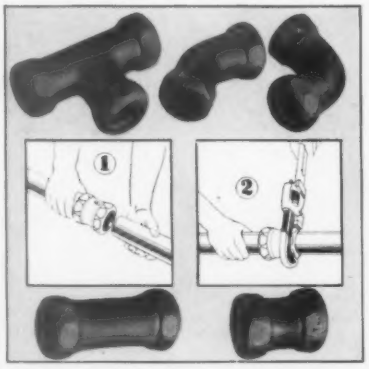
### Pipe Threading Eliminated By Standard Fittings

"Time out" for cutting pipe to exact lengths, threading, grooving, flaring, or screwing up joints in cramped quarters, is no longer necessary, according to the latest announcements from the S. R. Dresser Manufacturing Company, 271 Fisher Ave., Bradford, Pa. With the standard line of Dresser Style 65 Fittings just announced, nothing but an ordinary wrench is needed to complete a joint in a few moments.




**Pipe threading is eliminated with Dresser Style 65 Fittings, since plain-end pipe is used. Sketch shows working principle.**

After inserting the plain-end pipe into the fitting (which comes completely assembled) it is only necessary to tighten two threaded octagonal follower nuts with a few quick turns of the wrench. As this is done, resilient "armored" gaskets at each end of the fitting are compressed tightly around the pipe, forming a positive seal. The resulting joint, Dresser engineers point out, is not only permanently tight but absorbs normal vibration, expansion and contraction movement, and permits deflections of the pipe in the joint. If the pipe is already threaded, it can also be joined in the same way.



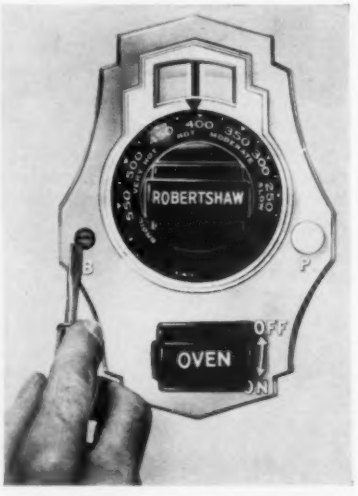

**Pipe threading is eliminated with Dresser Style 65 Fittings, which require plain-end pipe only. Sketches show simplicity of installation.**

The complete line of Style 65 Fittings includes: standard and extra-long couplings, ells (both 45° and 90°), and tees, all supplied in standard steel pipe sizes from ½" I.D. to 2" I.D., inclusive, black or galvanized.

These fittings are recommended by the manufacturer for simplifying joint-making and repair work on both inside and outside piping, for oil, gas, water, air, or other industrial lines. The basic principle is essentially the same as that used in other styles of the well-known Dresser Coupling.

### Robertshaw "Thermal Eye"

In this new Robertshaw control, when the temperature of the range oven reaches that for which the dial is set, a red signal moves into view in the window of the "Thermal Eye," letting the user know that the oven



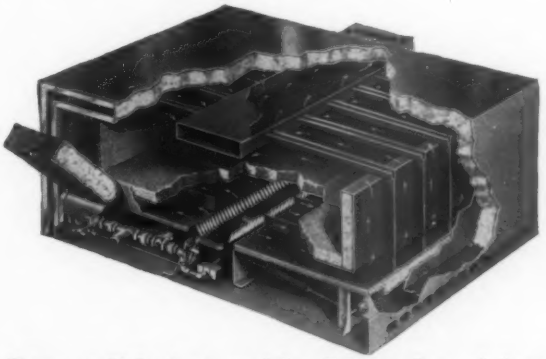

is ready for the food. The valves for adjusting the oven burner by-pass and the safety pilot are placed right on the front of the control itself so that the fitter, after having installed the range, need only pull spring caps out of the holes marked P and B to expose the adjustment valves. Robertshaw Thermostat Co., Youngwood, Pa.

# and Appliances

### New "Vulcan" Bake Oven

The Vulcan Multiple Heat Conduit Bake Oven is a new development in sectional cabinet ovens, and contains many improved, exclusive features.

Oven burner has center inlet and cross tubular section so flame is even all the way across. Only one burner is needed for proper top and bottom baking. Robertshaw heat control (range 250° to 550°). Baso Safety Pilot shuts off gas if supply fails. Conduits are of heavy wrought steel. Gas orifice is adjustable to meet local conditions. Inlets across entire side of oven assure adequate supply of secondary air for improved combustion.



**Shows multiple heat conduits directing flow of heat throughout oven. Note secondary air inlets, thick insulation.**

Smooth front without exposed bolts improve the appearance and make it easier to keep clean. Doors are thickly insulated, spring-counter-balanced for easy use, and act as loading shelves. Ovens are lined with bakers tile on sides and bottom, reducing drop in temperature when oven is loaded or unloaded.

The manufacturers claim for it better baking qualities, large capacity, speed, economy, accessibility and a cooler bakeshop.

Standard units measure 42" wide by 32" deep inside. The baking section is 8-1/2" high and the roasting section 11-1/2" high inside. Cabinet base may be used in place of leg base. Manufactured by Standard Gas Equipment Corpn., 18 East 41st Street, New York.

**One section No. 5000 roasting oven on 23" legs. Can be furnished with base if desired. Other sections can be added.**

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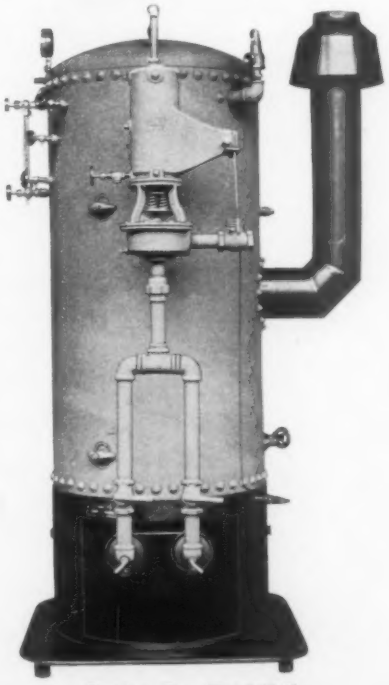
### Industrial Gas Boiler



**Lattner Gas Fired Boiler**

The P. M. Lattner Mfg. Company, Cedar Rapids, Iowa, offer a new design of internally fired flueless industrial gas boiler constructed for 100 lbs. steam operating pressure under A.S.-M.E. Code and adaptable to all process steam uses, the largest field being in the cleaning and dyeing trade. Claimed to be equal in thermal efficiency to the best type of vertical tubular construction, this unit is unique in its patented design which is very similar to that of a plain internally fired water leg flueless type of boiler.

A collapsible, easily removed drum or baffle, with high temperature metal deflector is hung from the center of the crown sheet and the heat from the burners is deflected by this baffle to the sides of the furnace where it is absorbed by the heat conductors. The balance of the heat travel is up through the heat conductors to the crown sheet, then down inside the baffle and out the stack.

Hand hole openings are provided for clean out purposes. Removal of the gas burners and the collapsible baffle through the base, permits access to the entire furnace and heating surfaces of the boiler. If by chance the baffle should become damaged, the boiler may be operated without it during the repair period.

Standard equipment includes all regular boiler trim, gas burners and steam pressure operated gas control. If required, a safety low water gas cut-off is supplied. This unit is made in the following sizes:—5, 8, 12 and 18 H.P.

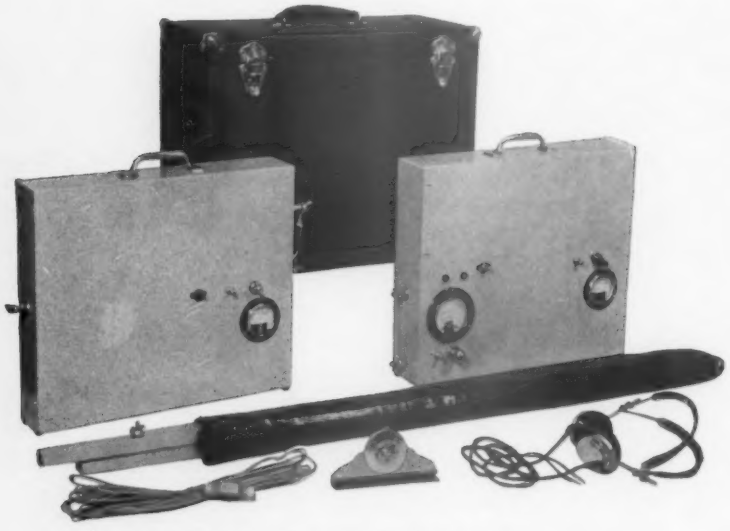
# New Equipment and Appliances

### Radio Device Locates Underground Pipe Lines

A new instrument known as the M-Scope, an invention of Dr. Gerhart R. Fisher, Director of the Fisher Research Laboratories, is now being used successfully for locating and mapping gas distribution lines.

It consists essentially of two specially designed radio units, —a transmitter and receiver,—the former sending out a continuous buzzing signal. When there is no metal interposed between the units, a definite volume of sound is heard in the earphones of the receiver where a meter also gives a definite reading. If a metal object, evenly deeply buried, lies between the two units, the volume of the signal increases and the meter reading becomes higher.

For some services one man is required for each unit, while for others, where the location of a pipe is approximately known, both units are handled by a single operator as shown in the cut. Lost lines, valves, manholes, etc., can be located and illicit connections can be detected. Costly exploratory excavations can be avoided and damage to other service lines during excavation can be avoided.



The two units, accesssories and carrying case.

In using the assembled M-Scope to locate a buried pipe line, the operator switches on the transmitter, puts on earphones connected with the receiver, and carries both units.

To trace the line, the transmitter is set on the ground directly above it, and the operator, carrying the receiver, follows the path along which sustained signals are received. Sudden increases in the signals mean additional metal—a valve, junction, etc.,—just below. Sudden decreases mean that the line has turned aside or ended. Energy for both units is supplied by standard dry cells which last several months in normal service. Individual units weigh about 8 lbs. each. The complete instrument in a carrying case weighs about 22 lbs. Further details may be had from Fisher Research Laboratories Sales Co., 45 Rockefeller Plaza, New York, or Board of Trade Bldg., San Francisco.

*(Continued from page 55)*

offer to them via the rather unspectacular means outlined.

A few statistics may be of interest: During the period from September 15, through and including November 15, all prospects submitted were subject to the special campaign provisions. These numbered 1673 prospects from which 577 sales were completed according to the following table:

| *Appliance* | *No. of Prospect* | *No. of Sales* |
|---|---|---|
| Circulating Heaters | 802 | 391 |
| Radiant Heaters | 284 | 14 |
| Ranges | 206 | 27 |
| Conversion Burners | 165 | 99 |
| Unit Heaters | 93 | 11 |
| Water Heaters | 50 | 6 |
| Boilers and Furnaces | 41 | 5 |
| Radiators | 27 | 24 |
| Line Extensions | 2 | 0 |

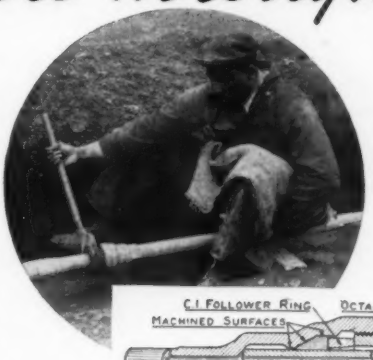
The estimated annual revenue secured as a result of the prospect sales made was $30,500.00. This amount would be the equivalent in load building value of the sale of 5000 radiant heaters under conditions as they are in Pittsburgh. The 1673 prospects submitted were about 50% in excess of the number received the preceding year with the estimated value of load secured more than twice the figure $14,-190.00 of 1935.

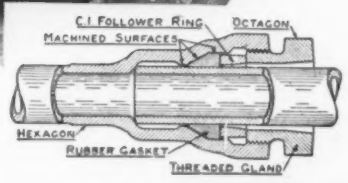
In justice to the House Heating Department, it should be pointed out that the volume of business secured through employe prospect sales was only a part of that obtained by that department. Through the expanded sales efforts of this department, additional gas revenue obtained, principally during the fall months, totaled well in excess of $200,000.00.

# McWANE CAST IRON 2" PIPE

## *When they're through . . you are through*

Every foot of McWane 2" in this main tests 30,000 pounds tensile strength. Every foot has been sand cast from good gray iron . . the one ferrous metal able to resist corrosion for **centuries.** When the crew's through, you are through. No coating. No coddling . . No cutting expensive pavements. No replacemements. First cost is last . . a tremendous dividend on the few extra pennies involved in first cost!






**McWANE GLANTITE *Rubber Ring* JOINT**

stays bottle-tight under modern working pressures. This joint, spaced at intervals in a line of McWane 2" cast iron pipe, takes care of expansion and contraction. Glantite fittings!

*Sand Cast Inside and Outside*

**McWANE CAST IRON PIPE COMPANY**

BIRMINGHAM, ALA. SIZES 1¼" THROUGH 12"

*Visit our Booth No. 238 A.G.A. National Gas Section, Kansas City, Mo.*

# over 25,000,000 FEET IN USE

ALFRED I. PHILLIPS

CONSULTING ENGINEER

Rate Development Valuations Reports

Design Management

122 GREENWICH STREET NEW YORK

**JOURNAL GAS FLOW COMPUTERS**

*For High or Low Pressure*

**PRICE $3.50 EACH**

*For Sale by* **AMERICAN GAS JOURNAL**

MODERNIZE WITH MOHAWK PRODUCTS

ALL STEEL

MOHAWK HI-SPEED TRAILER

TOOL AND SUPPLY TRAILERS FOR GAS AND ELECTRIC COMPANIES.

HOTSTUF BITUMEN HEATERS.

LEAD AND COMPOUND MELTING POTS.

Hotstuf

MOHAWK ASPHALT HEATER CO.

FOR AN UNMIXED GAS PURIFYING MEDIUM...USE

LAVINO "ACTIVATED" OXIDE

A great many plants prefer Lavino "Activated" Oxide supplied in unmixed form—ready for mixing with their own carrier. But, whether supplied unmixed, or coated on tough, hardwood shavings (as we supply it to many others) the pertinent point is that Lavino "Activated" Oxide is unsurpassed for maximum $H_2S$ removal!

Let's talk over the proven facts and show you what it can do in your plant. Your inquiry does not obligate you in any way. Write, today!

**E. J. LAVINO AND COMPANY**

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CHICAGO PITTSBURGH

# News of the Industry

## Natural Gas Convention

**By Chas. D. Greason**
Chairman Publicity Committee
Natural Gas Department Convention

Kansas City, Mo.—Judging from the interest already displayed on the part of manufacturers W. T. Rasch, president of the Association of Gas Appliance and Equipment Manufacturers, and other executives of that organization expect all the exhibit space to be taken for the exhibit to be held in conjunction with the Natural Gas Department of the American Gas Association Convention in Kansas City May 10 to 14.

Upwards of 90 manufacturers have already reserved exhibit space with the Association. New reservations are coming in daily at the office of the Association, 60 East 42nd Street in New York.

Natural gas men who attend the convention will find an exhibition hall in Kansas City's new 6½ million dollar auditorium equipped with the most modern facilities available, for an exhibition of this kind.

In the hall, light fixtures of a direct type have been installed in the ceiling and have been designed to cast their rays downward so that the displays are illuminated with an intensity equal to that of show windows. However, there is no glare or discomfort to visitors. Walls in the exhibition hall are of reddish brown and they provide a neutral background, combining with the lighting arrangement to emphasize the displays and exhibits rather than the hall itself.

Exhibitors will find that every convenience possible has been provided for them. Their crated exhibits may be driven on to the exhibition floor and there unloaded on electric trucks and tractors provided for the rapid assembling and dismantling of exhibits. In the hall an ample storage space for the exhibitors' boxes and crates is provided.

Every service possible has been provided for the exhibitors. Convenient to all spaces will be gas, water, drains, compressed air and both light and heavy duty electrical current. Portable transformer and motor generators make available unusual voltages for the occasional exhibitor who requires them.

In connection with the hall a carpenter shop, paint shop and plumbing shop are maintained to meet all requirements of exhibitors.

During the Natural Gas Convention, entrance to the hall will be from the Fourteenth street side of the auditorium. Natural gas men attending meetings in the Music Hall where the general sessions are to be held, or attending any of the sectional meetings in other rooms in the auditorium, will pass through the exhibit both going to and coming from the meetings. Arrangements have been made to hold the registration for the convention in the Fourteenth street lobby entrance.

**Barbara Jenkins, 6-year-old cooking expert of Denver, Colo., who will appear during the Natural Gas Convention in Kansas City on the same program with the Mystery Chef on the final day of the meetings, Friday, May 14.**

Among the manufacturers who have reserved space in the exhibition hall are the following:

American Gas Products Corp.
American Meter Co.
American Stove Co.
American Thermometer Co.
Bastian-Morley Co.
Bristol Co.
Bryant Heater Co.
Chaplin-Fulton Mfg. Co.
Cleveland Heater Co.
Cleveland Trencher Co.
Clow Gasteam Heating Co.
Coleman Lamp & Stove Co.
Connelly Iron Sponge & Governor Co
Crane Co.
Cribben & Sexton Co.
Cutler-Hammer, Inc.
Detroit-Michigan Stove Co.
Dresser Manufacturing Co., S. R.
Estate Stove Co.
Fisher Governor Co.
Foxboro Co.
Frick-Reid Supply Corp.
Gas Service Co.
General Ceramics Co.
General Controls Co.
General Electric Co.
General Gas Light Co.
Gustin-Bacon Manufacturing Co.
Homestead Heater Co.
Hotstream Heater Co.
Independence Stove & Furnace Co.
Johns-Manville, Inc.
Lycoming Manufacturing Co.
McWane Cast Iron Pipe Co.
Merco Nordstrom Valve Co.
Metric Metal Works
Mine Safety Appliances Co.
Minneapolis-Honeywell Regulator Co.
Moore Corp.
Mueller Co.
Mueller Furnace Co., L. J.
National Machine Works
National Supply Co.
Ohio Foundry & Mfg. Co.
Pacific Gas Radiator Co.
Pacific Meter Works
Payne Furnace & Supply Co.
Peerless Mfg. Co.
Penn Electric Switch Co.
Pennsylvania Furnace & Iron Co.
Pittsburgh Equitable Meter Co.
Pittsburgh Water Heater Corp.
Refinery Supply Co.
Reliance Regulator Corp.
Reynolds Gas Regulator Co.
Roberts-Gordon Appliance Corp.
Robertshaw Thermostat Co.
Roper Corp., Geo. D.
Ruud Manufacturing Co.
Safety Gas Main Stopper Co.
Savory Appliance, Inc.
Security Stove & Mfg. Co.
Servel, Inc.
Skinner Co., M. B.
Sprague Meter Co.
Surface Combustion Corporation
Tappan Stove Co.
Wailes Dove Hermiston Co.
Ward Heater Co.
Waukesha Motor Co.
Webster Engineering Co.
Westcott & Greis, Inc.
Wilcolator Co.
Zink Co., John

### Missouri Association of Public Utilities

The annual State convention of the Missouri Association of Public Utilities will be held April 21, 22 and 23, 1937, at the Elms Hotel, Excelsior Springs, Mo. C. E. Michel, president of the Association, will preside at the business sessions, and at the annual dinner on the evening of April 23. The membership of the Association includes virtually every privately-owned electric, gas and water company in Missouri.

Among the speakers will be: Robert W. Hendee, Colorado Springs, Colo., Manager, Colorado Interstate Gas Co.; Grover C. Neff, Madison, Wis., Wisconsin Power & Light Co.; Dr. Harry F. Parker, Jefferson City, Mo., State Health Commissioner of Missouri; H. C. Blackwell, Cincinnati, Ohio, Cincinnati Gas & Electric Co.; Conrad H. Mann, Kansas City, Mo.; and S. B. Williams, New York City, Managing Editor, Electrical World; D. L. Fennell, Kansas City, Mo., Kansas City Public Service Co.

Among the subjects of the speakers will be: "The Gas Industry Looks Ahead"; "A Theme Song for Next Year"; "Electrifying Rural America"; "Water Purification in Times of Floods or Drouth"; "Accident Prevention"; "How Utilities Can Share to the Fullest Extent in the Current Business Upturn"; "Maintaining Utility Service under Flood Conditions"; and "The Utilities' Place in Community Life."

### Southern Gas Association Elects New Officers

W. H. McInnis, commercial manager of the Memphis Power and Light Company, was elected second vice-president at the closing session of the convention of the Southern Gas Association, March 12. Another Tennessean, H. G. Bonner, president of the Knoxville Gas Company, was moved up to first vice-president and Chester L. May, vice-president and manager of the Community Natural Gas Company, of Dallas, was promoted to the presidency. S. L. Drumm of New Orleans Public Service was re-elected secretary-treasurer. New directors are E. C. Kollock of the Atlanta Gas Company; A. D. MacLean, Pittsburgh Equitable Meter Company; L. B. Denning, Jr., Community Natural Gas, Dallas, and Harry K. Wrench, Jacksonville Gas Company. The gas men will meet in Dallas next year.

### Gas Appliance Sales Continue to Show Gains

Sales of domestic gas appliances for the year 1936 continued to show gains over the corresponding year, according to the Statistical Department of the Association of Gas Appliance & Equipment Manufacturers.

A total of 1,500,000 gas ranges was sold during the year 1936, representing an increase of 31% over the preceding year.

Sales of gas-fired water heaters of the automatic type increased nearly 20% and gas-fired refrigerator sales were 25% above the 1935 figures.

# Indiana Gas Association Convention Muncie, Indiana, April 28-29, 1937

### The Program

April 28 10:00 A. M.-11:00 A. M. Registration.

11:00 A. M. **Remarks by President,** L. C. Heavner, Northern Indiana Public Service Company, Fort Wayne, Indiana. **Address of Welcome. Report of Secretary-Treasurer,** P. A. McLeod, Public Service Company of Indiana, Newcastle, Indiana. **Appointment of Committees.**

1:30 P. M. Address, **Economics of the Domestic Load and Consumer Research,** Mr. Herman Russell, President, American Gas Association.

2:30 P. M. Symposium—**Have We In Indiana Kept Pace?** Chairman, Mr. C. V. Sorenson, Public Service Company of Indiana, Indianapolis, Indiana. Discussion by Mr. J. Sackman, Northern Indiana Public Service Co., Hammond, Indiana; Mr. E. Peaboby, Central Indiana Gas Company, Muncie, Indiana; Mr. W. Smiley, Public Service Company of Indiana, Indianapolis, Indiana; Mr. E. Weston, Indiana Gas Utilities Company, Terre Haute, Indiana; Mr. E. Lundgren, Bozell and Jacobs, Inc., Indianapolis, Indiana; Mr. C. D. Porter, Public Service Company of Indiana, Indianapolis, Indiana; Mr. F. B. Culley, Southern Indiana Gas & Electric Co., Evansville, Indiana; Mr. T. L. Kemp, Citizens Gas & Coke Utility, Indianapolis, Indiana; Mr. D. H. Mitchell, Northern Indiana Public Service Co., Hammond, Indiana; Mr. H. V. Armstrong, Indiana Gas Utilities, Terre Haute, Indiana; Mr. H. Carl Wolf, Central Indiana Gas Company, Munice, Indiana.

4:30 P. M. **My Conception of Home Service,** Dorothy Shank, Director of Research Kitchen, American Stove Company, Cleveland, Ohio.

6:30 P. M. Informal banquet.

April 29th, 9:00 A. M. **Unaccounted for Gas,** Mr. J. M. Pickford, Northern Indiana Public Service Company, Hammond, Indiana. Discussion: Mr. D. S. Martin, Citizens Gas & Coke Utility, Indianapolis, Indiana; Mr. J. A. Mishler, Public Service Company of Indiana, Bloomington, Indiana; Mr. T. J. Kelly, Public Service Company of Indiana, Fort Wayne, Indiana; Mr. Phillip Rector, Central Indiana Gas Company, Muncie, Indiana.

10:00 A. M. Symposium: **Rehabilitating Flooded Gas Properties.** Mr. R. V. McGuire, Public Service Company of Indiana, Newcastle, Indiana; Mr. F. A. Schaefer, Public Service Company of Indiana, New Albany, Indiana; Representative of Southern Indiana Gas & Electric Company, Evansville, Indiana.

11:00 A. M. **Employee Education.** Prof. Bray, Purdue University, Lafayette, Indiana. Discussion: Mr. Phillip Rector, Central Indiana Gas Company, Muncie, Indiana; Mr. F. Kussmaul, Northern Indiana Public Service Company, Hammond, Indiana; Mr. E. J. Hendrickson, Citizens Gas & Coke Utility, Indianapolis, Indiana.

1:30 P. M. **The Effect of Recent Legislation on The Accounting Department.** Mr. J. A. Kennedy, Northern Indiana Public Service Company, Hammond, Indiana.

2:30 P. M. **Report of Committees:** Technical, Industrial Gas, Commercial, Accounting, Advertising. Report of Purdue Gas School.

3:30 P. M. Election of Officers. Adjournment.

There is every indication of more than the usual amount of interest in this coming meeting which promises to be one of the best attended for many years. The address of Mr. Herman Russell and the symposium on Rehabilitating Flooded Gas Properties will doubtless command a great deal of interest.

### CONVENTION CALENDAR

**April**

12-14—American Gas Association Distribution Conference, Washington, D. C.
12-14—Mid-West Gas Association, annual convention, Waterloo, Iowa.
20-22—Southwestern Gas Measurement Short Course, University of Oklahoma, Norman, Okla.
21-23—Missouri Assn. of Public Utilities, Elms Hotel, Excelsior Springs, Mo.
28-29—Indiana Gas Association, annual convention, Hotel Roberts, New Castle, Ind. P. A. McLeod, secretary, New Castle, Ind.

**May**

4-6—Pennsylvania Gas Association, Sky Top Lodge, Sky Top, Pa.
10-15—Natural Gas Department, American Gas Association, Kansas City, Mo.
24-26—American Gas Association Production and Chemical Conference, New York, N. Y.

**June**

8-9—American Gas Ass'n, Industrial Gas Section, Industrial Gas Sales Conference, Chicago, Ill.
10-11—Canadian Gas Association, annual convention, Chateau Laurier Hotel, Ottawa, Canada.

**July**

1-3—Michigan Gas Association, Grand Hotel, Mackinac Island, Mich.

**September**

Week of 27th—American Gas Association, annual convention, Cleveland, O.

# Gas Refrigeration Campaign

Enthusiasm for the 1937 A.G.A. gas refrigeration campaign is already at so high a pitch that it is a foregone conclusion that this year's contest will be the most successful ever conducted by the Association's Refrigeration Committee, according to a statement from Hall M. Henry, the 1937 chairman of the Committee. This year's contest which will take the form of a national "giant birthday party" with hundreds of utilities and thousands of gas appliance salesmen in every section of the country participating is sponsored jointly with the Association of Gas Appliance and Equipment Manufacturers.

"While the main part of the drive will be conducted during April, May and June, as in other years, to correspond with the regular Spring and Summer refrigerator selling season, a "warm-up" campaign was scheduled for March, and the rush of Association members to enter this preliminary campaign has been more than gratifying to the Committee," Mr. Henry stated.

"The large number of liberal cash awards which will go to 281 gas company sales persons who come out ahead in the campaign during March has been a large factor in creating the unusual interest being shown in the campaign proper. The awards are in two categories, the sum of $25 each going to the retail sales people who make the greatest number of installations of Servel Electrolux refrigerators during the month, and $10 each to those making lesser records than the top men. The manner in which the awards are distributed is described in a broadside sent to all gas company members of the Association. The awards for March achievements total $2,900.

"Unusual interest in the March drive has been shown by the combination gas and electric companies," Mr. J. W. West, secretary of the Committee reports registration of these companies, which heretofore have not found it practical to enter a nationwide refrigeration selling contest.

"The 1937 contest is called 'the tenth anniversary campaign,' because the marketing of Servel Electrolux gas-operated refrigerators were first marketed by gas companies just a decade ago.

"The symbol of the campaign will be a hundred-pound birthday cake, twenty-eight of which will be distributed to winning companies at the conclusion of the contest. Nearly a ton of batter will be used in making the cakes, and they will be baked in gas ovens. In addition to these culinary trophies, approximately $40,000 in cash awards will be distributed, mostly to sales people.

"Birthday cakes exhibited at sales meetings in Pittsburgh, Boston, Chicago, and Memphis, have created a lot of friendly comment by members of the industry. With the fine start already made in getting the campaign under way, those who compete for awards in April, May and June, are not going to be satisfied with crumbs, but are going in for the whole cake. The 1937 drive will actually last five months as a 'clean-up' campaign will be conducted during July."

Commenting on the handful of confetti which was included in the gaily-colored portfolio announcing the March drive, a promotional device intended to create amusement and at the same time to emphasize the importance of the announcement, Mr. Hall said: "I may not be able to look some of the gas men in the eye after having covered their desks and floors with confetti, but we certainly got the party started."

The campaign is carried on in collaboration with the Servel Electrolux Refrigerator Sales Division of Servel, Inc., the promotion manager of which is Howarth S. Boyle.

Other than Mr. Henry and Mr. West, the 1937 Refrigeration Committee consists of Albert G. Schroeder, vice-president and secretary, Grand Rapids Gas Light Company; Henry Dropp, sales manager, Milwaukee Gas Light Company; Paul J. Naschold, sales manager, New Haven Gas Light Company; Clyde Potter, commercial manager, Southern Counties Gas Company; B. H. Gardner, director of sales, The Gas & Electric Appliance Company, and B. O. Brown, regional sales manager, Servel, Inc.

## Industrial Managing Committee Meets

An important meeting of the Managing Committee of the Industrial Section of the American Gas Association was held March first at the Benjamin Franklin Hotel, Philadelphia, to review reports and check on the activities of the various committees of this section. This was attended by prominent industrial gas men from all over the country including those who head up the different sub-committees on industrial and commercial gas uses. Ralph L. Manier, Syracuse Lighting Co., Inc., Syracuse, N. Y., presided as Chairman of the Industrial Section. Plans were laid for a series of meetings to be held in conjunction with the annual convention of the American Gas Association to be held in Cleveland the week of September 27th. Plans were also made for conducting the National Conference of Industrial Gas Sales at the Palmer House, Chicago, June 8 and 9. The next meeting of the Managing Committee will be held at the Palmer House on June 7th.

## New Jersey Gas Association Meeting

Increasing domestic gas sales was the keynote of the Twenty-sixth Annual Convention of the New Jersey Gas Association. The entire afternoon session was devoted to that subject with papers on gas refrigeration, water heating, advertising, home service and competition for the domestic load.

The Convention was held on March 23rd at the Berkeley-Carteret, Asbury Park, N. J., with an attendance estimated to have reached about 1000.

Mr. T. R. Crumley, President of Jersey Central Power and Light Company, welcomed the delegates to Asbury Park.

President W. S. Potter presented his report as did other officers and committee chairmen. Of particular interest were the disclosures (1) that the house heating manual prepared by the New Jersey Gas Association is being revised and will be made generally available by the American Gas Association, and (2) that the New Jersey Gas Association is collecting data for an industrial gas manual.

Major Alexander Forward, Managing Director of the American Gas Association told of "Headquarters Happenings."

Mr. P. S. Young, Vice-President of Public Service Electric and Gas Company, gave a most interesting talk in which he touched particularly on the broad aspects of load building.

An exhibit by Mr. C. R. Banes of the Long Island Lighting Company model gas plant concluded the morning session.

In the afternoon there were the following papers:

### Going Places With Gas Refrigeration

GEORGE S. JONES, Jr., Vice-President
Servel, Inc.

### The Golden Faucet

H. N. RAMSEY, President
The Welsbach Co.

### Better Equipment

G. E. KEENEN, Eastern Manager
Cribben and Sexton Company

### Better Advertising

A. G. A. SOUND FILM
HENRY OBERMEYER, Ass't to Vice-President
Consolidated Edison Company

### Better Kitchens and Recipes

ELIZABETH SWEENEY, Chairman
Home Service Committee
American Gas Association

### Meeting Competition

H. R. CARLSON, Sales Manager
The Hartford Gas Company

### Newly Elected Officers

President, J. P. Leinroth, Public Service Electric and Gas Company, Newark, N. J.

First Vice-President, B. A. Seiple, Jersey Central Power and Light Company, Asbury Park, N. J.

Second Vice President, G. B. Webber, Public Service Electric and Gas Company, Newark, N. J.

Secretary-Treasurer H. A. Sutton, Public Service Electric and Gas Company, Newark, N. J.

## Pacific Coast Gas Sales Continue to Improve

Statistics recently issued by Pacific Coast Gas Association for 1936 indicate satisfactory progress during that year. For the entire area, commercial and industrial gain in M.C.F. show the largest increase being 13.8% above 1935, with a revenue gain of 8.7%.

Reference to previous reports indicates that active meters are still increasing at a satisfactory rate. The rate of increase in California domestic sales has flattened out but holds up in the Northwest states. These figures of course reflect the mild weather in November and December and take no account of the phenomenal heating load experienced in January of 1937. Comparison of the percentage increase of revenues from domestic sales with the increase in volume sales shows the effect of frequent rate reductions and the general improvement in efficiency of modern gas appliances.

That general business on the Pacific Coast continues to improve is indicated by the large increases in commercial and industrial load in all sections.

During 1936 gas companies in the Pacific Coast states increased their active meters by 3.6 per cent, their total sales in cubic feet by 9.8 per cent, and gross revenue by 1.7 per cent. At the end of 1936 there were 61,710 more active meters than the year before and 185,928 more than at the close of 1929. 1936 sales in cubic feet exceed those of 1929 by more than 35 per cent.

The following summarizes more detailed figures for 1936 given to company members:

**Summary of Sales and Revenue**

| | Active Meters Dec. 31 | Sales Mcf | Gross Revenue | Miles of Main |
|---|---|---|---|---|
| Arizona & Nevada | 23,092 | 1,603,106 | $1,338,608 | 378 |
| British Columbia | 48,597 | 1,248,294 | 1,372,412 | 653 |
| California | 1,540,600 | 173,713,305 | 73,699,976 | 21,795 |
| Oregon | 86,067 | 3,277,901 | 3,031,261 | 2,398 |
| Washington | 71,144 | 2,823,766 | 2,930,800 | 1,895 |
| Total | 1,769,500 | 182,666,372 | $82,373,057 | 27,119 |

## Proposed Natural Gas Line

A natural gas line is proposed from Atlanta to Columbia, and has been submitted to Mayor Owens of Columbia. The population to be served numbers 199,000, and taking in other towns that might be served would bring the population up to 200,000. The towns touched would be Columbia, Lexington, Batesburg, Leesville, Ridge Spring, Johnston, with a branch line from Johnston to Newberry, Aiken, Augusta, and Edgefield. Other towns on the line are McCormick, Greenwood, Saluda, Abbeville, Elberton, Washington, Athens, and on to Atlanta.

A meeting soon will be called in Columbia by Mayor Owens to perfect the plans which interested parties will be invited to attend.

## Gas Rate Suit Dismissed

The United States fifth circuit court of appeals Tuesday affirmed action of United States Judge Ben C. Dawkins of Shreveport in dismissing a suit in which citizens of Vidalia, La., sought to force the Interstate Natural Gas Company of Monroe to supply them gas at 7 cents per 1000 cubic feet. The suit originally was brought in the state court by Gilbert P. Bullis, Vidalia, attorney, who asked that the gas company be required to perform terms of a contract with him whereby the company was pledged to supply gas to Vidalia consumers at wholesale or reasonable rates.

When the suit was transferred to federal court Judge Dawkins permitted the municipality of Vidalia to intervene as a plaintiff and then dismissed the suit for "no cause of action." The gas company has been supplying natural gas to Vidalia since 1927 at 30 cents per 1000 cubic feet for domestic and 20 cents per 1000 feet for commercial consumption, records show.

The gas company, according to the circuit court opinion, was permitted to extend its pipe line through Bullis' property in 1926, and under terms of a contract agreed to furnish natural gas to Vidalia consumers at wholesale or reasonable rates. The fact that Vidalia citizens have been using gas supplied by the company and paying the rates prescribed would indicate that the municipality agreed to terms of the contract for their gas supply, the opinion said.

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## Semet-Solvay to Build Coke Plant for Great Lakes Steel Corporation

The Semet-Solvay Company, one of the wholly owned subsidiaries of Allied Chemical and Dye Corporation, has been awarded by the Great Lakes Steel Corporation of Detroit a contract for a 130 oven by-product coke plant. The project calls for the construction of Zug Island on the Detroit River, of two batteries of Semet-Solvay Vertical Flue Combination ovens. The by-product plant will include a benzol refining unit. Also, the program provides for equipment for the unloading of coal from boats and coal storage.

The design of the coke ovens provides for heating with blast furnace gas, releasing the coke oven gas to the steel mills. The coke oven gas will be piped through a large gas line to the mills at Ecorse, some three miles distant.

The new plant, which will embody many advances and refinements in the technique of coal processing, will be built in the 45th year of the by-product industry's establishment in America. The first unit on this side of the Atlantic was of Solvay design, constructed at Syracuse, N. Y. in 1892.

## National Industrial Gas Sales Conference to Meet in Chicago

The National Industrial Gas Sales Conference will be held by the Industrial Gas Section of the American Gas Association in conjunction with the Mid-West Industrial Gas Sales Council at the Palmer House, Chicago, Ill., June 8 and 9. A most interesting program is being prepared by the Program Committee of the Industrial Gas Section of the American Gas Association. In direct charge of the preparation of this program is Frank H. Tremby, Jr., Philadelphia Gas Works Co., Philadelphia, Pa., assisted by a special Program Committee of the Mid-West Council under the leadership of D. W. Chapman, Peoples Gas Light & Coke Co., Chicago, Ill.

## House Heating Portfolio

The Rudy Furnace Co., Dowagiac, Mich., has issued an elaborate portfolio describing their house heating units including gas heat air conditioner. Details of the equipment are well illustrated and described in detail including thermostat controls. The portfolio 12½" x 16" has stiff cover, spiral wire binding and bears the title "Balanced Atmosphere."

## Pressure Regulator Selector Chart

Davis Regulator Co., 2535 So. Washtenaw Ave., Chicago, offers a novel chart designed to enable a quick and accurate selection of the proper type of pressure reducing valve to use for any given kind of service on steam, gas, air, oil or water.

# A Hit With Every Salesman!

## Two Books By
## Charles W. Merriam Jr.

Handy informative volumes written in practical language, giving authoritative facts and figures in an entertaining way on gas water heaters and ranges. They treat of heating fundamentals and all details of appliance operation. A real source of "PEP" for every salesman.

### HOUSEHOLD GAS WATER HEATING

Nine chapters of the true essence of this subject.

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**Engineering ABC's**
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**Hot Water—How Much?**
**Gas Consumption for Water Heating**
**Water Piping & Installation**
**What Size Heater**
**Automatic Heater Accessories**
**Competitive Water Heating**
**Hot Water—For What?**

"A Book like this has long been needed to enable our salesmen to present a sound and convincing attack on this most worthwhile business of our industry."—A. M. Beebee, Gen. Supt. Gas Dept., Rochester G & E Co., Rochester, N. Y.

"A Real contribution to the gas industry."—R. A. Koehler, Chairman, A.G.A. Water Heating Committee.

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**Insulation**
**Automatic Oven Lighting**
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## Consolidated Edison Co. Elects New Officers

At the organization meeting of Consolidated Edison Company of New York, Inc., held March 17 at 4 Irving Place, Oscar H. Fogg, formerly executive vice-president, was elected to the

OSCAR H. FOGG

newly created position of vice-chairman of the board and Ralph H. Tapscott, formerly vice-president of Consolidated Edison in charge of electrical operations within New York City, was elected president and a trustee. Mr. Tapscott succeeds Frank W. Smith who, at his own request, was not re-elected to that office in view of his impending retirement at the end of June under the company's age limit of seventy.

RALPH H. TAPSCOTT

Floyd L. Carlisle, Chairman of the Board of Trustees, was re-elected to that office, and the following vice-presidents were re-elected: F. H. Nickerson, R. B. Grove, W. Cullen Morris, A. H. Kehoe, E. F. Jeffe, J. C. Parker, Philip Torchio, John Stilwell, and W. W. Erwin. N. T. Sellman was re-elected assistant vice-president; H. C. Davidson, secretary, and J. R. Fenniman, treasurer. Henry Obermeyer, director of the Advertising Bureau, was elected an assistant vice-president.

Mr. Smith will continue as a member of the Board of Trustees. Also, until his retirement, he will continue as president of Brooklyn Edison Company, Inc., and as president of the New York and Queens Electric Light and Power Company.

## Gar Wood Announces New Appointments

Frank H. Dewey, general manager of the air conditioning division of Gar Wood Industries, Inc., has promoted Don J. Luty to the office of assistant general manager. Norman Saylor has been appointed manager of the Company's Detroit Branch. Mr. Luty has been connected with the Company for many years in the capacity of chief engineer. Mr. Saylor joined the air conditioning division of Gar Wood Industries, Inc., last year and since then has devoted his entire time to branch sales promotional work.

## S. G. E. Commercial Credit Plan

Standard Gas Equipment Corporation, 18 East 41st Street, New York, has issued a bulletin for dealers describing the S. G. E. Commercial Credit plan for promoting sales of domestic and heavy duty equipment on the deferred payment plan. Among the sales folders for dealer distribution, one describes the "Tip a Meal" plan which has as an adjunct a small bank modeled after one of their range designs in which daily "tips" may be dropped to meet the monthly payments.

## New Lincoln Representatives

Two appointments to the sales staff of its New York office, 330 West 42nd Street, are announced by The Lincoln Electric Company, Cleveland, Ohio. They are W. H. Borst, graduate in mechanical engineering from the University of Illinois, and E. A. Webber, formerly with the company's Chicago office.

The new men will assist G. N. Bull, manager, and other members of the New York office staff in providing welding consultation service on all phases of welding and give service on customers' needs for welding machines, electrodes and supplies. Facilities are available for demonstrating the new "Shield-Arc SAE" welder which features "Dual Continuous Control."

## A. E. Smallwood Now With Glenwood Range Co.

Formerly with the Consolidated Gas Electric Light and Power Company laboratory at Baltimore, Mr. A. E. Smallwood has joined the staff of the Glenwood Range Co. of Taunton, Mass. He will have complete charge of the Glenwood experimental and testing laboratory, where his technical knowledge of he adaptation of gas for cooking will be reflected in the products of this Company.

Continuing in the capacity of gas range sales promotion manager, C. W. Merriam Jr. will cooperate in the field where his knowledge of the gas business in general has been an important influence in working out important details of new range models.

## Foxboro Moves Atlanta Office

The Foxboro Company, makers of industrial precision instruments and controllers, have announced the change of address of their Atlanta office which is now located at: Room 715, 101 Marietta Street Building. The new quarters were necessitated by the rapid growth of business in the Southern district.

## R. L. Manier Advanced by Niagara Hudson Power Co.

The many friends of Ralph L. Manier, Industrial Heat Engineer for the Syracuse Lighting Co., Inc, Syracuse, N. Y., will be glad to learn of his recent appointment to the Central Division Staff of the Niagara Hudson Power Co. for coordinating all promotional activities in commercial and industrial heating and air conditioning sales. Mr. Manier is a graduate of Rensselaer Polytechnic Institute and has been in charge of the above mentioned activities for the Syracuse Lighting Co., Inc., since 1920. Long active in the Industrial Gas Section of the American Gas Association he has occupied the chairmanships of the Survey Committee, the Non-ferrous Metal Treatment Committee and the Large Volume Water Heating Committee. This year he was advanced to Chairman of the Industrial Gas Section of the Association in which position of leadership he plays an important part in formulating the policies of both the natural and manufactured gas industries in their relations with industrial and commercial customers throughout the country. S. W. French of the Syracuse Lighting Co., Inc., succeeds Mr. Manier.

## "EMCO" Field Regulators

Pittsburgh Equitable Meter Company has recently published a bulletin describing in detail EMCO Field Regulators. These are designed for such applications as serving a single consumer or a group of small consumers directly from a well or transmission line carrying extremely high pressure. It is generally considered better and safer practice to reduce such high pressure to a lower intermediate one of ten to fifty pounds before the gas is put into service regulator controlling the house pressure.

EMCO Field Regulators are made in the following types: single valve, single spring for outlet pressures up to 70 lbs. per square inch; single valve, double spring for outlet pressures above 70 lbs. per square inch; balanced valve, single spring for outlet pressures up to 140 lbs. per square inch; balanced valve, double spring for outlet pressures above 115 lbs. per square inch; and lever and weight type for outlet pressures of 4 ozs. to 15 lbs. per square inch.

Copies of this bulletin No. 1024 may be secured by writing the Pittsburgh Equitable Meter Company, 400 N. Lexington Ave., Pittsburgh, Pa.

## "Bob" Steele Becomes Sales Manager

In recognition of his outstanding record during the six years he has been in the commercial department, C. W. "Bob" Steele was named residential sales manager, commercial department, Portland Gas & Coke Company, Portland, Oregon, on February 11, according to the announcement made by John J. Winn, Jr., commercial manager.

C. W. STEELE

Mr. Steele will have charge of the residential sales crew of 35 salesmen in the Portland area and 15 salesmen in twelve or more other towns served by the company. He will direct residential selling among the company's 86 thousand customers.

Mr. Steele, a graduate of Oregon State College in 1923 in mechanical engineering, first joined Portland Gas & Coke Company in 1928 as a draftsman in the engineering department, coming from the Long Bell Lumber Company at Longview, Washington, where he had been employed for four years in the engineering department.

After three years as a draftsman in the engineering department, he was transferred to the commercial department and has been in selling activities since. For more than four years he was on the "battle ground" of direct selling in Portland. He served as sales crew supervisor for a year and one-half and for the last six months of 1936 was sales coordination supervisor.

Mr. Steele succeeded Joe D. Ingram, residential sales manager for a year and one-half who resigned to accept another selling position in Portland.

## Roper Range Sales Aids

The March issue of the Roper Ranger issued by George D. Roper Corporation, Rockford, Ill., describes and illustrates sales aids for gas companies and appliance dealers including window displays, broadsides, consumer folders, sales bulletins, newspaper mats, etc.; many of them furnished free.

## Robert A. Weinhardt Joins W. M. Chace Company

"Specialized engineering" is again exemplified by the W. M. Chace Company, Detroit, Mich., in the recent addition of Mr. Robert A. Weinhardt to its staff.

Mr. Weinhardt, a member of SAE, is well known in motor circles, and will devote himself exclusively to the thermostatic bimetal problems of the automotive industry. He brings a wealth of experience to his new work. Formerly Assistant Chief Engineer of the Reo Motor Car Company, he had previously served for a number of years in the engineering divisions of Packard, Continental Motors and Cord.

ROBERT A. WEINHARDT

The appointment of Mr. Weinhardt is in accord with the Chace policy of specialized engineering for the various industries. Recognizing that the multitude of uses for thermostatic bimetal and the many diverse conditions under which it is employed called for highly specialized knowledge, this company long ago set out to build and maintain an engineering department qualified to deal ably with the specific problems of individual industries.

Adherence to this policy, together with almost continuous expansion and improvements in both laboratory and manufacturing facilities, has enabled the Chace Company to keep pace with the rapidly changing needs of modern industry, and to supply precision bimetal exactly adapted to particular requirements.

J. E. Woodall, who has been associated with Electrolux Sales Division of Servel, Inc., for the last ten years is now connected with H. Fagan Co., distributors of gas appliances in Milwaukee. The company is distributor for Roper Gas Ranges, Ruud Gas Water Heaters, Roberts Gordon Conversion Burners, Clow Gasteam Radiators and Time-o-Lite Gas Water Heater Lighters. Offices are at 161 West Wisconsin Ave.

# Obituary

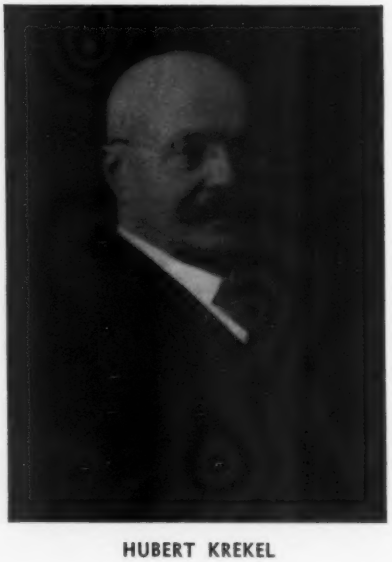
### HUBERT KREKEL

Mr. Hubert Krekel, engineer of the Gas Department of Bartlett Hayward Co. for 48 years, died on March 12, at his home, in Baltimore.

Born in 1865 at Hoechst-am-Main, Germany, he attended grammar and high school. After graduating he served one year in the German Navy at Kiel, and then attended Technical High School at Midweide.

A close friend of the late T. J. Hayward advised him to come to America, where he arrived in 1888, and secured a position in the Engineering Department of The Bartlett Hayward Company. From then to the time of his death, he devoted his every effort to the designing of Gas Plants, Gas Plant Apparatus and particularly Gas Holders.

In the 48 years of his service the size of the gas holders increased from 1,000,000 cu. ft. and 2,000,000 cu. ft. to the 10,000,000, 15,000,000 and 20,000,000 cu. ft. holders of the present day. In the pioneering of the design of these improvements in gas holders Mr. Krekel led the way. The designs of the first 10,000,000 cu. ft. steel tank holder, the first 15,000,000 cu. ft. holder and the designs of the Waterless M.A.N. holders introduced in this country, were prepared under his direction.



HUBERT KREKEL

His work as Engineer of the Gas Department of The Bartlett Hayward Company required extensive traveling and he numbered among his friends the Gas Engineers and Executives of Gas Companies from Coast to Coast. His sturdy honesty and sincerity, together with his sunny disposition, made him beloved by everyone.

He is survived by his widow and his son, Albert, as well as four sisters and one brother in Germany.

### Penn Announces Changes in Branch Office Personnel

On March 1st Penn Electric Switch Co. announced the opening of a new branch office at 333 Mutual Home Building, Dayton, Ohio. This office is in charge of R. V. Clark who served as manager of the company's New York Office for six years. Prior to that, Mr. Clark was on the home office staff of the company at Des Moines, Iowa.

R. H. Luscombe, who was in charge of the Gas Control Division for three years, has been named manager of the New York Branch at 101 Park Avenue, to succeed Mr. Clark. Prior to joining Penn Electric Switch Co., Mr. Luscombe served for a number of years in the heating division of the Des Moines Gas Company.

These changes mark the expansion of our service to customers in the heating, refrigeration, air conditioning and pump and compressor fields in both these territories, according to Nelson B. Delavan, vice-president and director of sales.

The opening of the Dayton Branch, he believes, will enable them to keep in much closer contact with customers in Ohio and nearby adjoining territories and will make quickly available to those customers a consulting engineering service.

Ajax Flexible Coupling Company of Westfield, N. Y., has moved their Pittsburgh Sales Office to 970-B Union Trust Building. Mr. J. Guy Griffith is sales representative.

### F. L. Marshall Retires

Retirement of F. L. Marshall, vice-president and general manager of the Georgia Public Utilities Company, has been announced. One of the most widely known gas executives in the South, Mr. Marshall will continue to make his home in Augusta and will serve the company in an advisory capacity. He will be succeeded by J. W. McElderry, formerly manager of the gas company properties in Anniston and Gadsden, Ala. Mr. McElderry will be succeeded at Gadsden, in turn, by C. H. Horne, of Greeley, Colorado. The change is in the nature of a promotion both for Mr. McElderry and Mr Horne.

### Trotman with Roots-Connersville

J. B. Trotman, who for many years was associated with Goulds Pumps, Inc. and is widely known in the pump field, is now located at Connersville, Ind. as manager of the "T" pump division of Roots-Connersville Blower Corp.

The type "T" pump includes, among other features, seal-type packing glands which rotate with the shaft, completely eliminating stuffing box leakage. There is only one moving part, a balanced impeller.

One feature particularly stressed by the manufacturer is the ability to handle non-abrasive liquids at high heads without the complication of multi-staging.

### New Bristol Bulletin

The Bristol Company of Waterbury, Conn., has published an eight page bulletin, Number 483, on its new line of Low Range Pressure and Draft Recorders and Controllers. Copies of this publication will be sent on request.

The Cincinnati office of The Lincoln Electric Company is now located in Room 602, American Building, Central Parkway at Walnut St. This change was occasioned by the recent Ohio river flood. At the new location, F. H. Smith and E. T. Gregory will maintain a complete stock of Lincoln welding accessories and supplies and will be available for consultation on any problem involving the application and use of welding. Also on display are various models of the new "Shield-Arc S.A.E." featuring "Dual Continuous Control."

### Brown Flow Meters

The Brown Instrument Company, Philadelphia, Pa. has published a new catalog No. 2004 on Brown Flow Meters.

It covers the complete line of Brown Flow Meters, Indicating, Recording and Integrating, in both Electrical and Mechanical Types together with Brown Air-o-Line Flow and Liquid Level Controllers. It explains their application to Power Plant, Water Works and Gas Generation service, as well as to general industrial use. The catalog is replete with colorful illustrations and with diagrams showing details of the instruments.


## JOHNSON NO. 2

### Adjustable Bunsen Torch

Here is an adjustable Torch ideally suited for many shop and laboratory uses. The complete unit is light, compact and handy. Its many uses include metal melting, soldering, tempering tools, etc. Equipped with a powerful efficient No. 5 Type "A" Bunsen Burner with shut-off valve and pilot light. The top is removable and the burner can be adjusted to any angle or removed for a convenient hand torch. Economical to operate. Free catalog on request.

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## New AGA Approved TITAN Temperature and Pressure Relief Valve

This device is installed on the hot water outlet in the tank directly in the flow of water. Action, as a result, is unfailing and positive, there being no dead pockets to prevent proper functioning of relief valve.

Pressure relief is obtained through a spring-loaded valve which opens when the pressure reaches a predetermined point. Should the water become overheated to 200° F, a fusible disc melts and lets the water escape thereby preventing a further increase in temperature.

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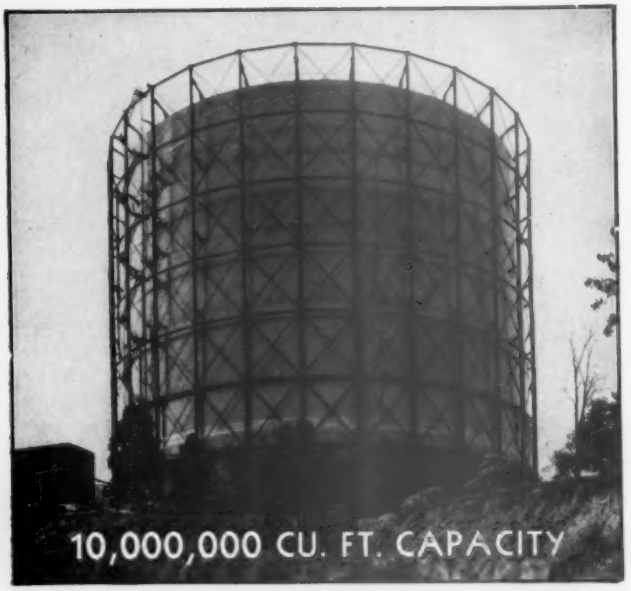


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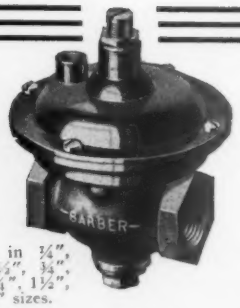


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EDITOR, AMERICAN GAS JOURNAL, 53 PARK PLACE, NEW YORK

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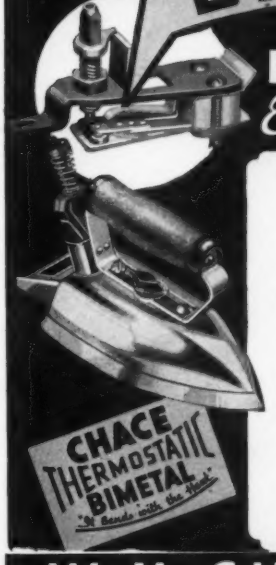


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Gas Meters

SUPERIOR METER CO.
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167 - 41st Street

## ACCELERATED LOAD BUILDING

*(Continued from page 46)*

ing. F. L. Firor, Public Service Electric & Gas Co., Orange, N. J., discussed the economies of unit space heaters in isolated parts of large factories and buildings, the main parts of which only were served by central heating systems. Proper venting of gas heaters has been found to be a successful weapon in combating oil competition according to L. E. Biemiller of the Consolidated Gas, Electric Light & Power Co., Baltimore, Md.

Advertising as an aid in selling commercial appliances was interestingly brought out by Emil Hofsoos, of Ketchum, McLeod & Grove, Pittsburgh, Pa.

At the afternoon session, H. N. Squier, President of the Pennsylvania Gas Association, introduced George L. Jones of Servel, Inc., Evansville, Ind. Mr. Jones ably discussed "What's Ahead for Domestic Gas Refrigeration?" The first gas refrigerator was produced just 10 years ago and in a very short time now, he said, the millionth gas refrigerator will be installed in a customer's home.

The meeting was closed by E. E. McCormick, The Peoples Natural Gas Company, Pittsburgh, Pa., who, in summing up said, "You must have been impressed, as I have been, with the great body of evidence that has been presented, as to the importance of the commercial gas field. Certainly no one who has heard these papers and discussions can doubt that it offers fertile ground for active promotion and holds out a promise of rich rewards.

Much favorable comment was heard concerning the Window Display Bulletin gotten out by the Committee on Industrial Window Displays of the Industrial Gas Section of which John A. Malone of the Consolidated Edison Company of New York is Chairman.

ISBELL-PORTER COMPANY

Engineers and Contractors for Complete Gas Works

I-P Co.

Manufacturers of All Kinds of Gas Apparatus

NEWARK, NEW JERSEY

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COMBUSTION UTILITIES CORPORATION
24 STATE STREET
NEW YORK

Oil Gas Plants—"Refractory Screen" Process for Base—Standby or Peak Loads—On Existing or New Water Gas Sets Low or High B.T.U. Gas


## MODERN HOUSE HEATING

*(Continued from page 30)*

One other thought while we are on the subject of keeping up with the procession. We, in the business of selling this great service, are obligated to train our employees, particularly our salesmen and installation crews, in scientific house heating; in new products, their merits and demerits; in new controls, their function, and how to properly adjust them in order that we may intelligently advise the public in buying the best equipment suited to their particular needs.

To companies selling Natural Gas in particular, space heating affords our largest market. It, therefore, deserves major consideration. In competition with other fuels, which in this modern day can be used automatically, we must be prepared to use modern day selling methods. Coal dealers who heretofore have not offered any type of coal burning equipment, are now selling automatic coal stokers, and dealers selling fuel oil are offering oil burners at low prices to their oil burning customers, to replace worn out oil burning equipment, in order to hold the fuel account. This is an example of the competition we must meet if we are to retain our rightful share of the fuel burning dollar. There are so many points in favor of gas for heating that it can be sold at a premium price over other fuels.

*Conclusion*

The trend is definitely toward automatic, controlled, complete house heating with warm air, forced-circulating systems of color, beauty, and charm, Winter Air Conditioning rather than house heating.

There is an eager market now ready for it, and the manufacturers have the equipment ready for us to sell. Stress the magic term "Winter Air Conditioning."

Let's make every new installation a gas installation, and let's not neglect the broad market still awaiting us for every type of gas heating.

As to the question "Where are we going?", ask each gas company executive and sales manager for the answer.

(Continued from page 26)

developed organic soil produced from such material is black or nearly so. As organic matter is not the only coloring matter in soils, color, by itself, is not an exact measure of the content of this important constituent; and beyond a black color further variations in content do not, of course, give rise to differences in color.

"The red and reddish-brown colors of soils are greatly dependent upon the content of oxidized, unhydrated iron oxide (hematite); while the oxidized, hydrated iron (limonite) is yellow or yellowish brown. Compounds containing reduced iron may impart a pale bluish color to the soil. Where such compounds exist as coatings around the other soil grains a relatively small content of the compound may have a great influence on the color of the soil mass. These various colors of the iron compounds are important as they afford significant indicators of the aeration and drainage of the soil. Red colors indicate, in general, good oxidation and good drainage; whereas grayish blue indicates poor drainage. Imperfectly drained soils are frequently mottled with gray, yellow, and rusty brown at some depth beneath the surface. Well-drained soils may sometimes exhibit a yellow color as an inheritance of a previous condition of poor drainage.

"Various colors or shades of color may be imparted to the soil as a result of special conditions, such as the purple colors sometimes attributed to a high content of manganese, or the white crusts or horizons indicating a concentration of salts. In very young soils, especially, colors may be inherited from those of the rock. These variations in color frequently indicate chemical and mineralogical differences. It is quite obvious that color by itself cannot be used as a criterion in soil classification, but when considered in connection with other characteristics of the soil it is of extreme importance in the classification.

"Soil Texture—The texture of soils refers to the size of the individual grains or particles. This property is partly inherited from the parent material from which the soil may have been developed and is partly a result of soil-forming processes. . . . The principal classes of soil according to texture are sand, loamy sand, sandy loam, loam, silt loam, clay loam, silty clay loam, and clay, in increasing order of their content of the fine separates. The physical properties of soil vary greatly with differences in texture. As the greater part of the physical and chemical properties of soil and changes in the soil is attributed to forces and reactions occurring at the surface of the soil grains, it is clear that the fine clay portion will be the most important, inasmuch as the surface exposed per unit weight of soil increases enormously as the diameter of the individual grains decreases.

"Soil Structure—As a characterization of the mechanical structure of the soil in addition to texture, soil structure, which refers to the manner in which the individual grains are arranged, is even more important. The individual grains may be grouped together in any one of a great number of forms, according to the texture of the soil, the chemical nature of the fine clay portion, the aeration, the kinds of plants and other organisms growing in the soil, and similar factors. The soil grains may be grouped into plates, crumbs, granules, prisms, or other characteristic morphological structural units. A few of the more common forms of soil structure are shown in Fig. 4. These forms may vary considerably themselves as to hardness and plasticity under different degrees of moistening."

(Continued in May issue)

Clean Up THE COMPLAINT
at the source
NOW I WONDER WHAT'S GOTTEN INTO THIS PILOT LIGHT
● It is both easy and economical to furnish clean gas to the consumer through the use of Blaw-Knox Gas Cleaners.
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# JOURNAL

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Specific Gravity 1.5-.35
Constants 1400-1000

**High Pressure Computer Range:**

Cu. Ft. of Gas Per Hour—100-10,000 M
Diameter of Pipe Inches ¾-30
Difference in Absolute Pressure—Lbs. per sq. in. 1-500
Sum of Absolute Pressures—Lbs. per sq. in. 2000-20
Specific Gravity 1.5-.35
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**PRICE $3.50 Each**

**SIZE 6½" x 8"**

## AMERICAN GAS JOURNAL

**53 Park Place** **New York**

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| No. 7 | 10,000 ft. per hr. |
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WORKING PRESSURES UP TO 75 LBS. PER SQUARE INCH.

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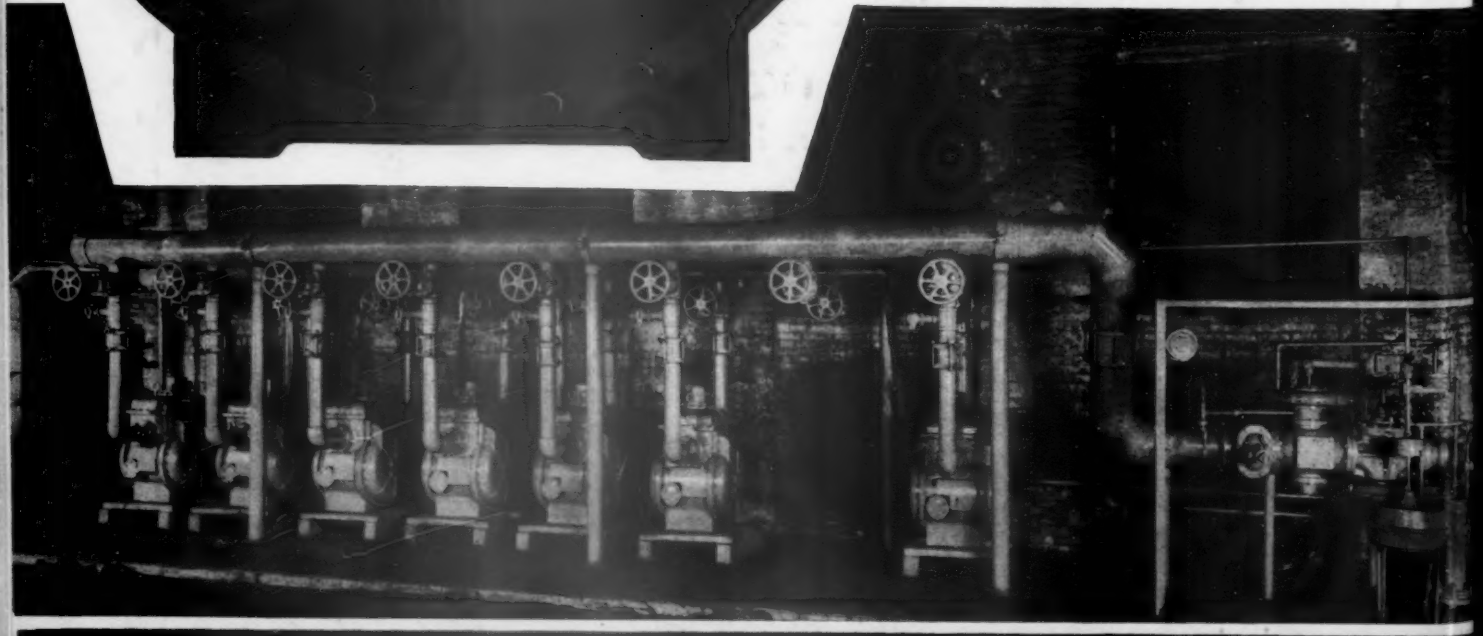
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